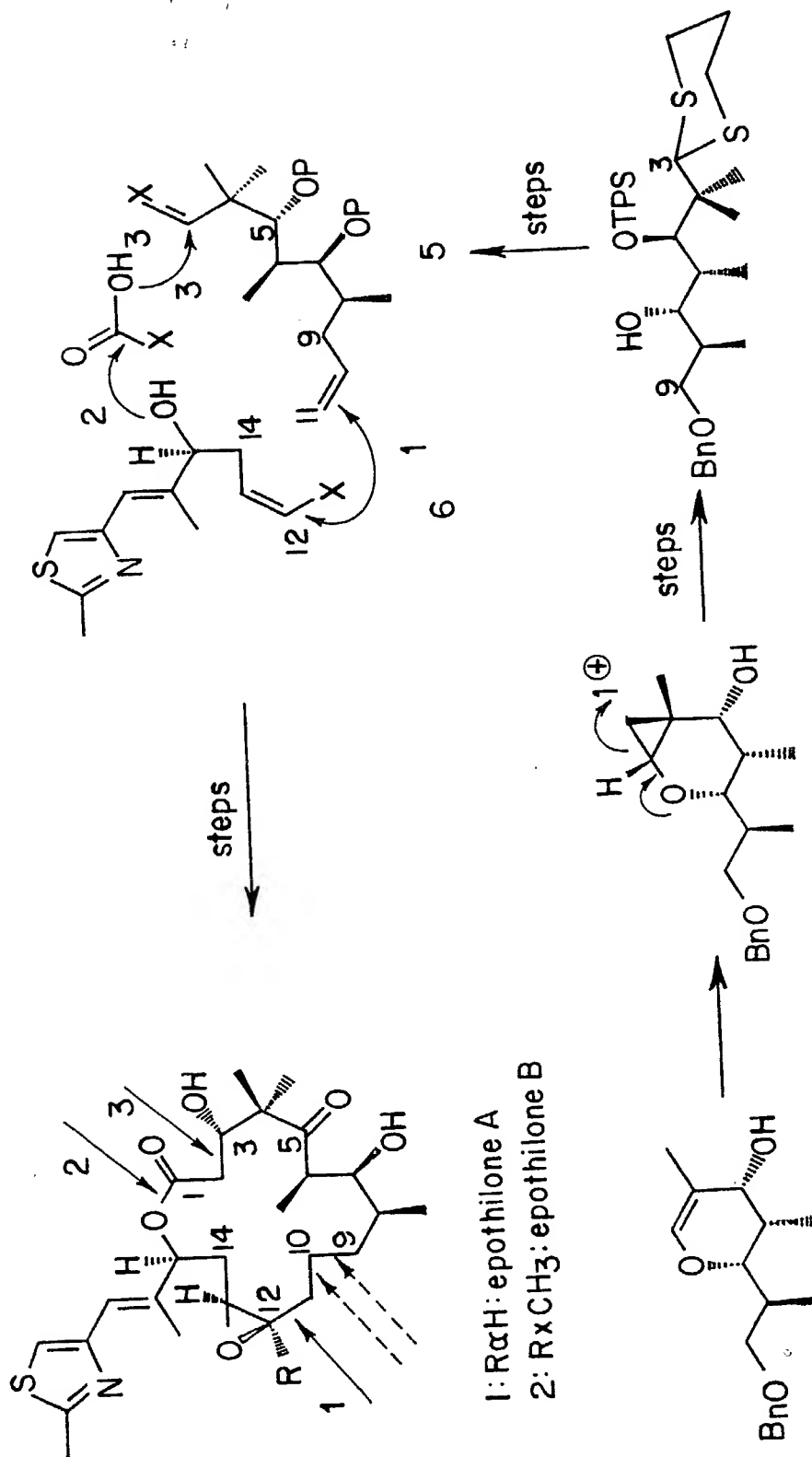


FIG. 1A



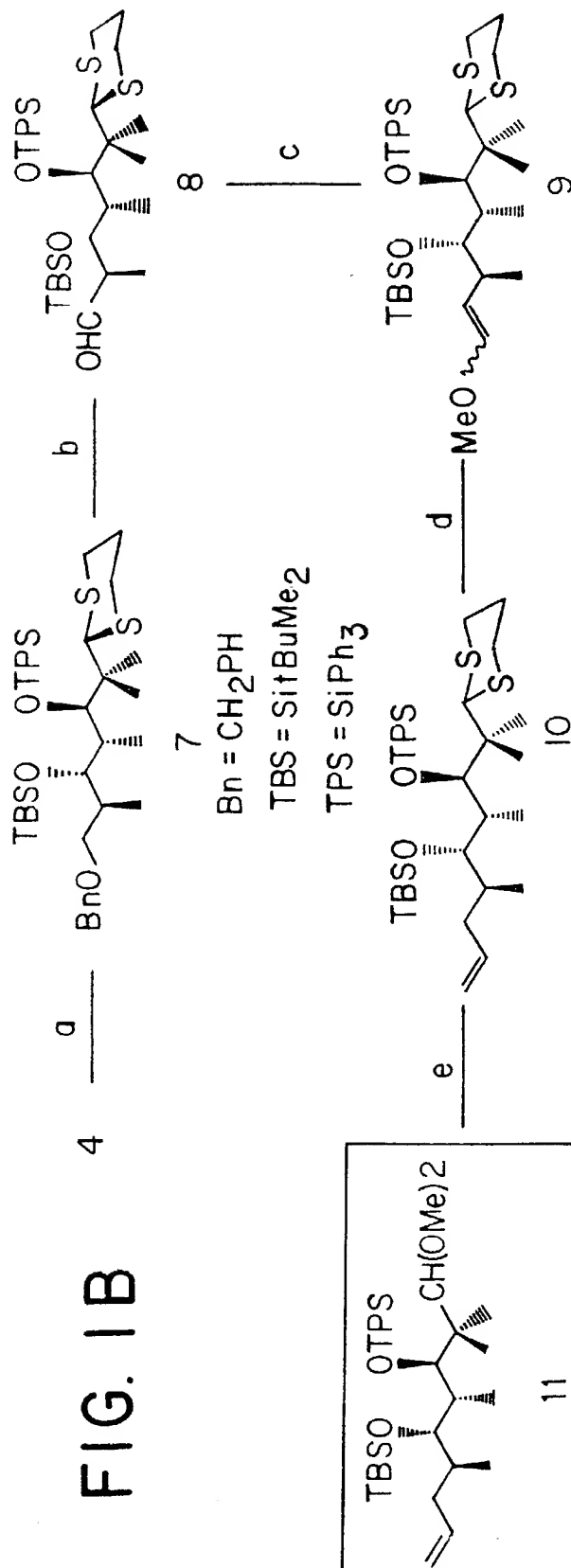
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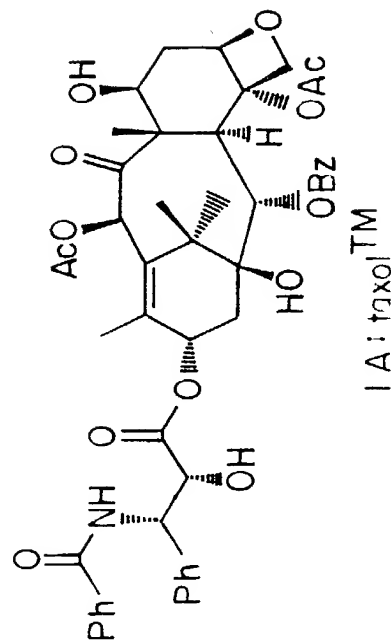
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FIG. 1B



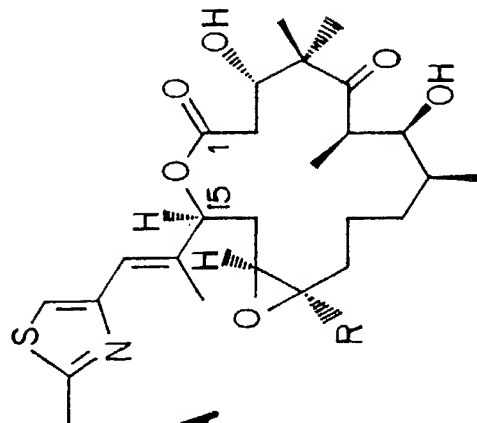
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FIG. 12B



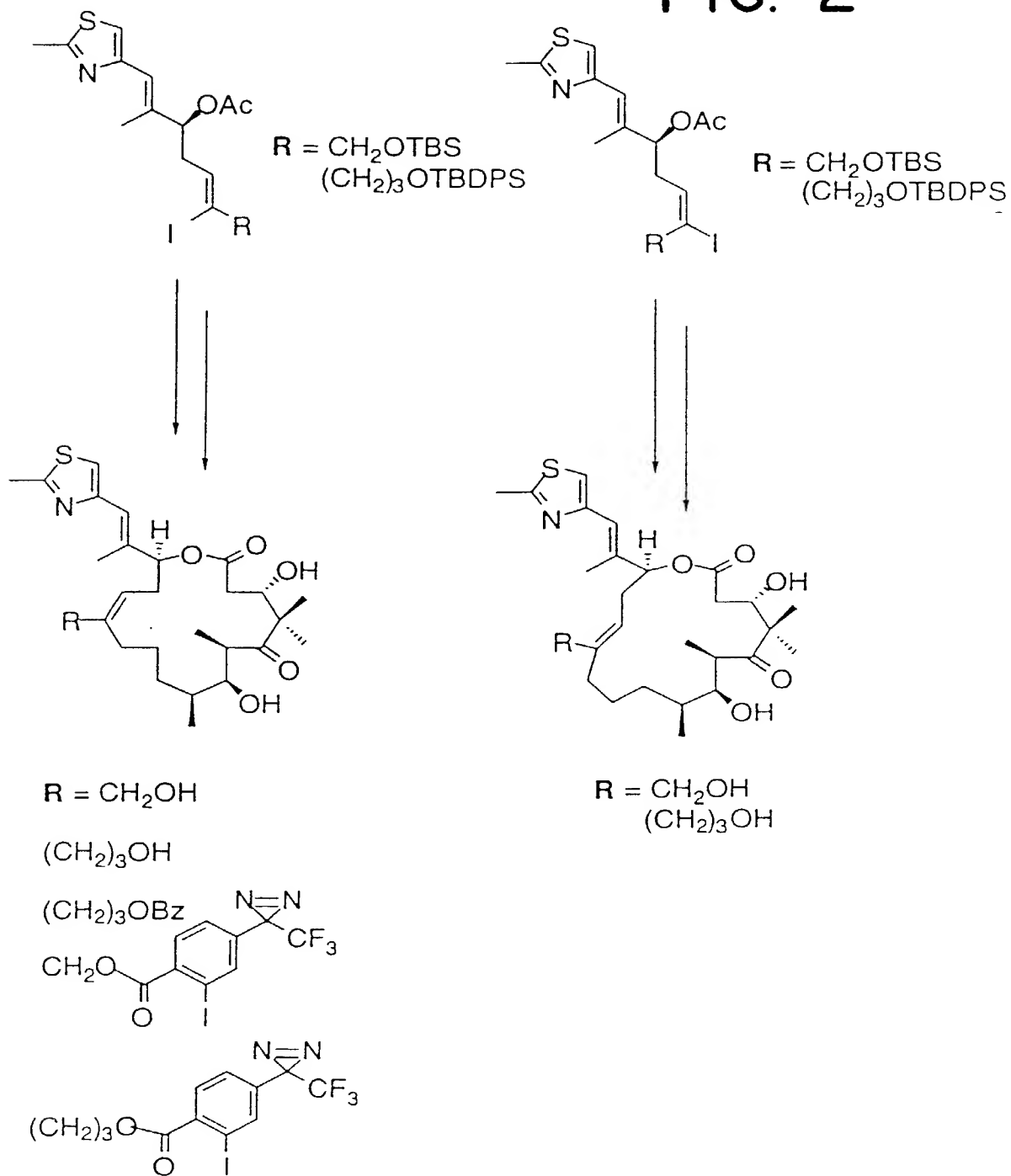
R = H: epothilone A  
R = CH<sub>3</sub>: epothilone B

FIG. 12A



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FIG. 2



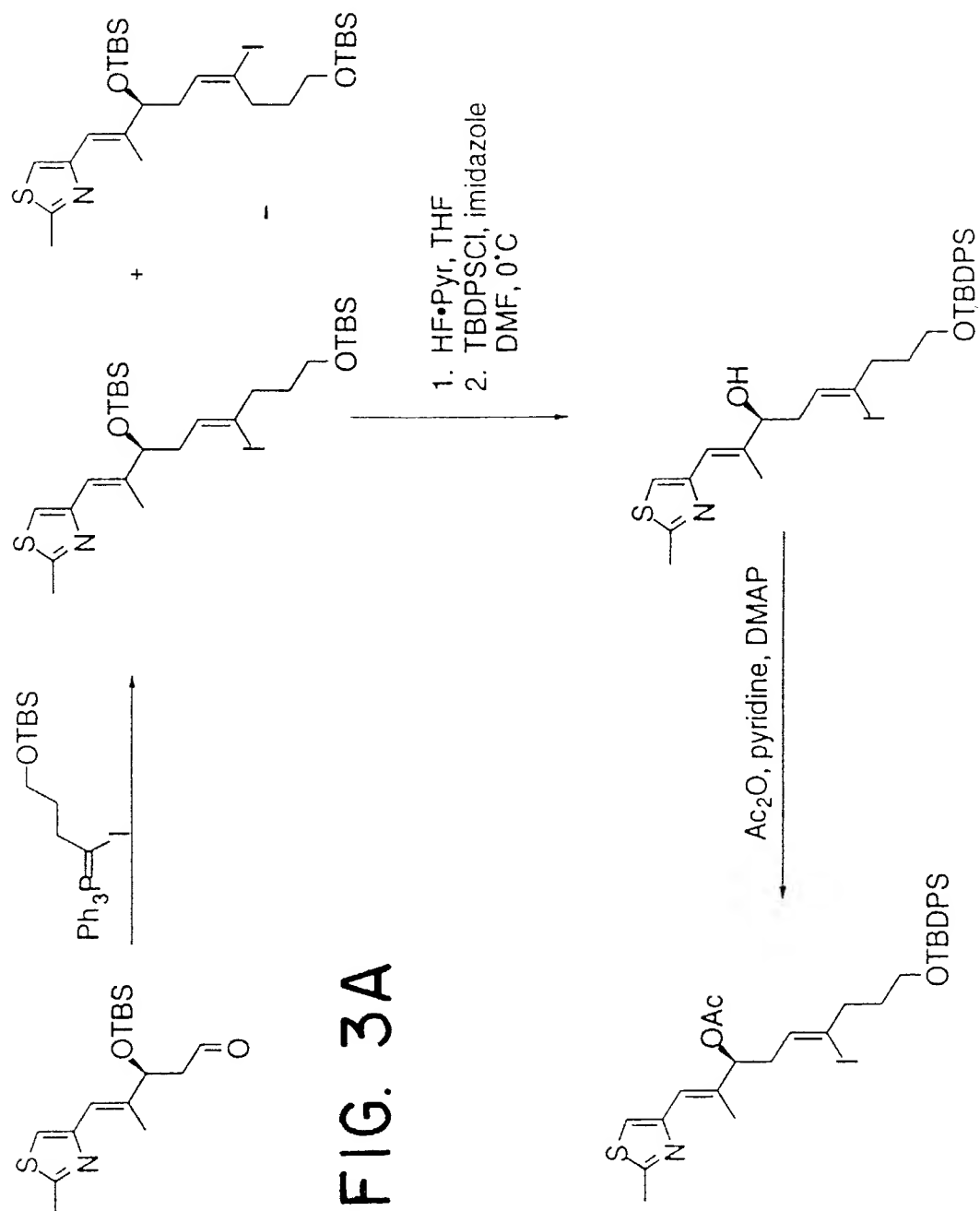
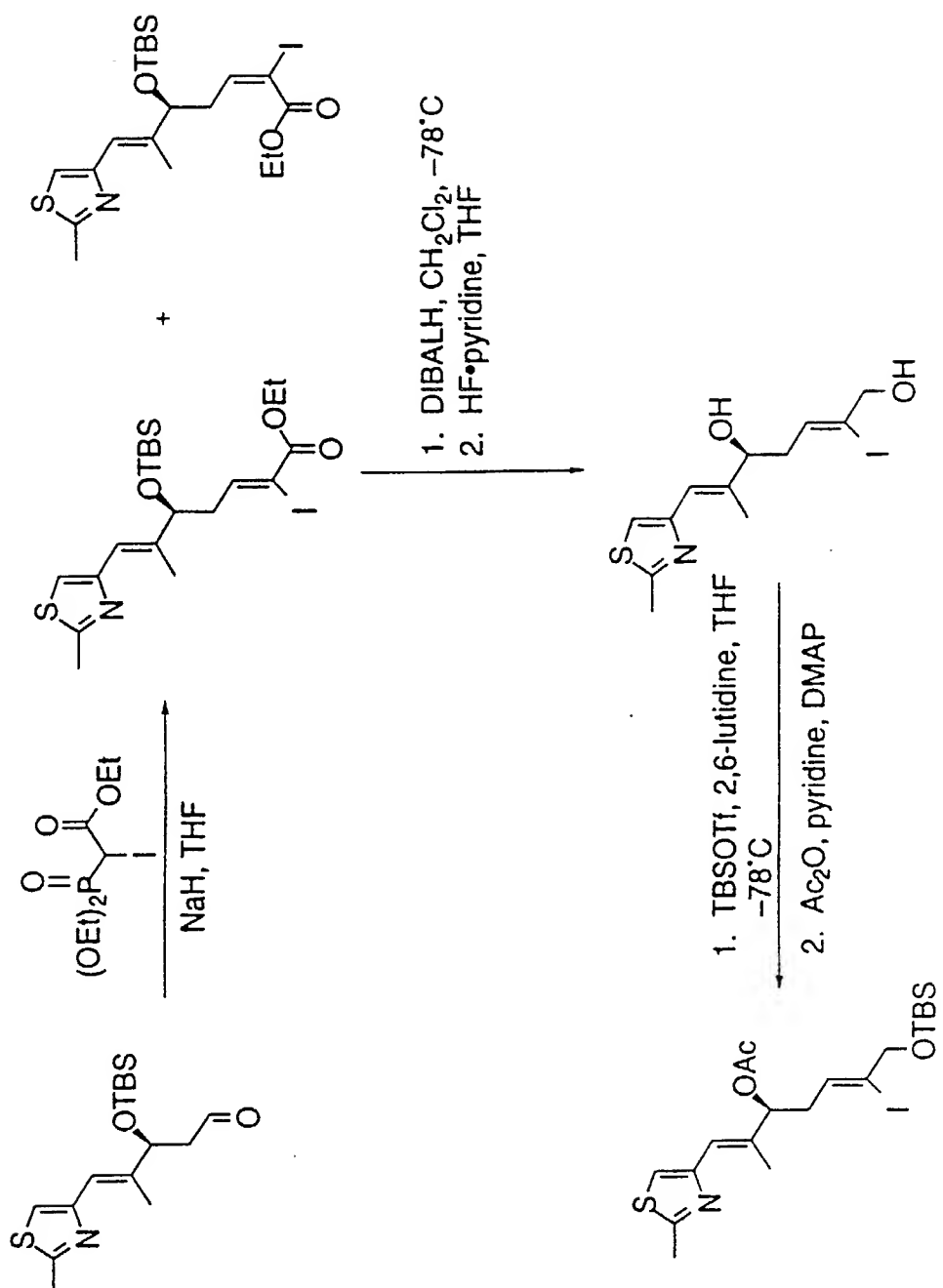


FIG. 3B





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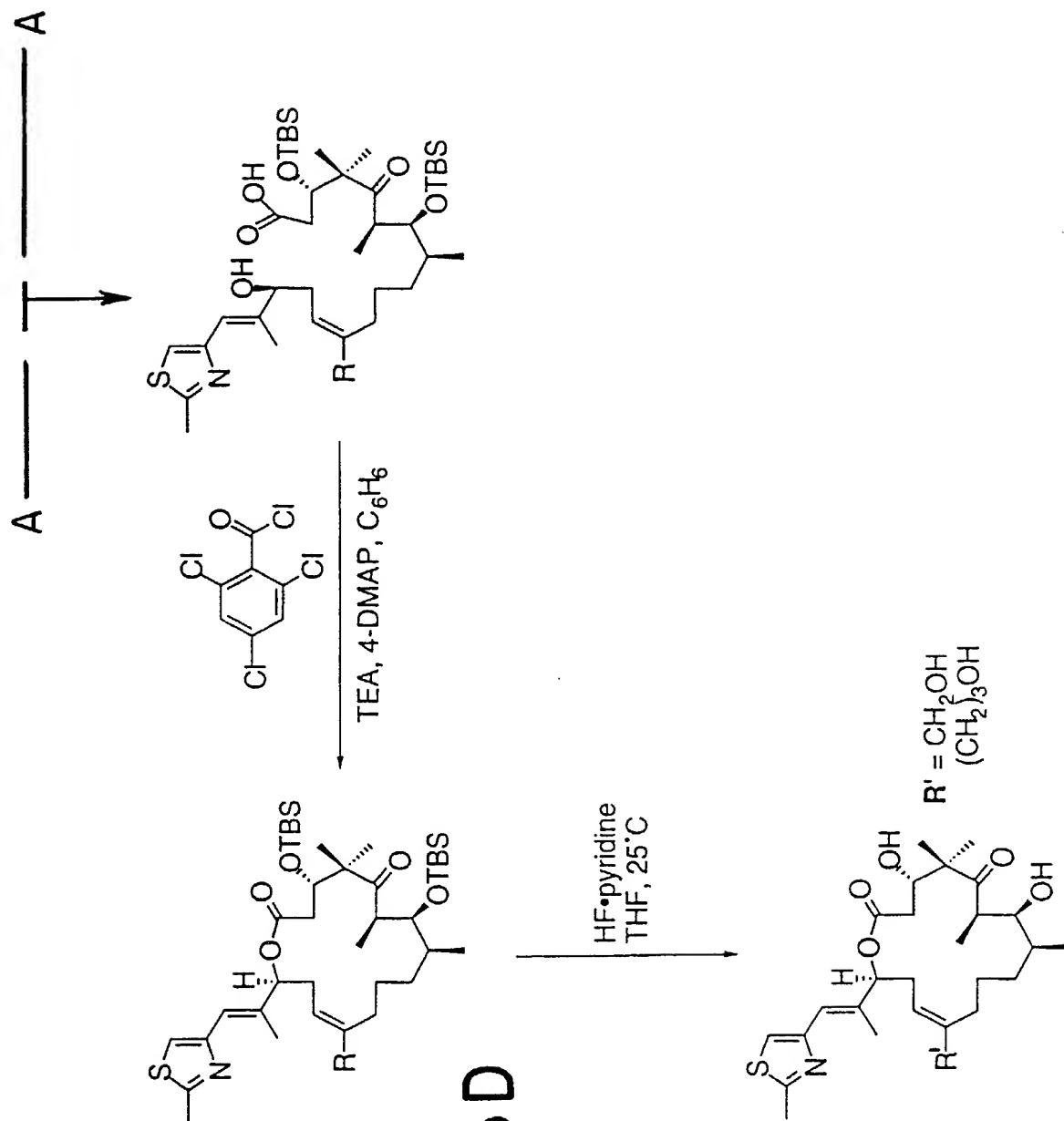


FIG. 3D

FIG. 3E

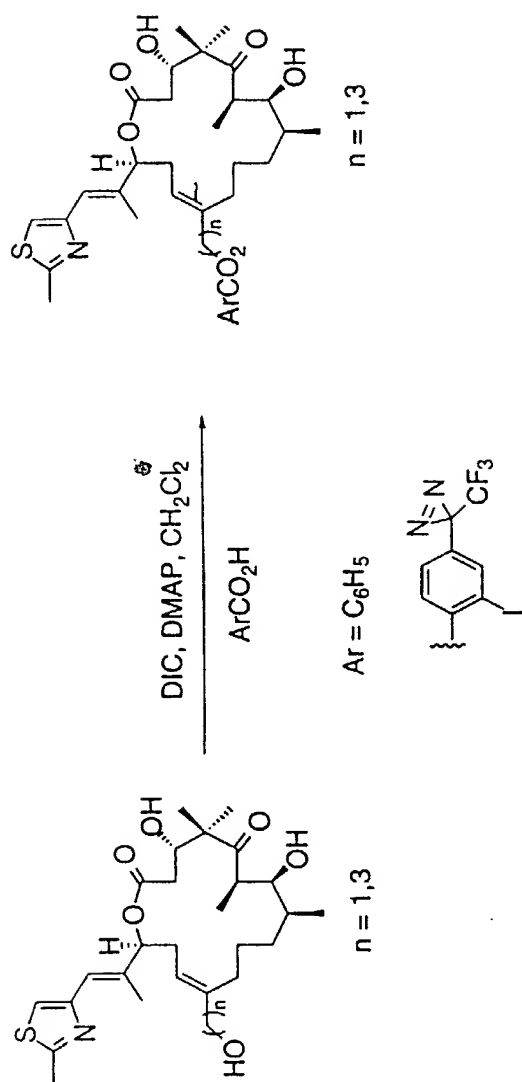


FIG. 3F

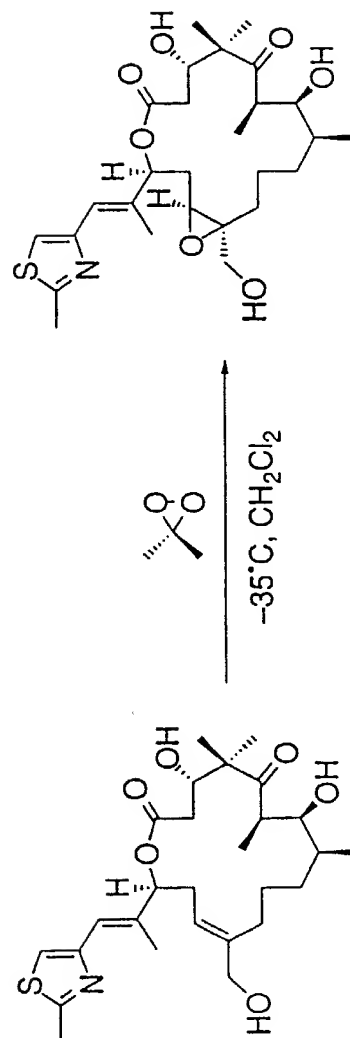






FIG. 4B

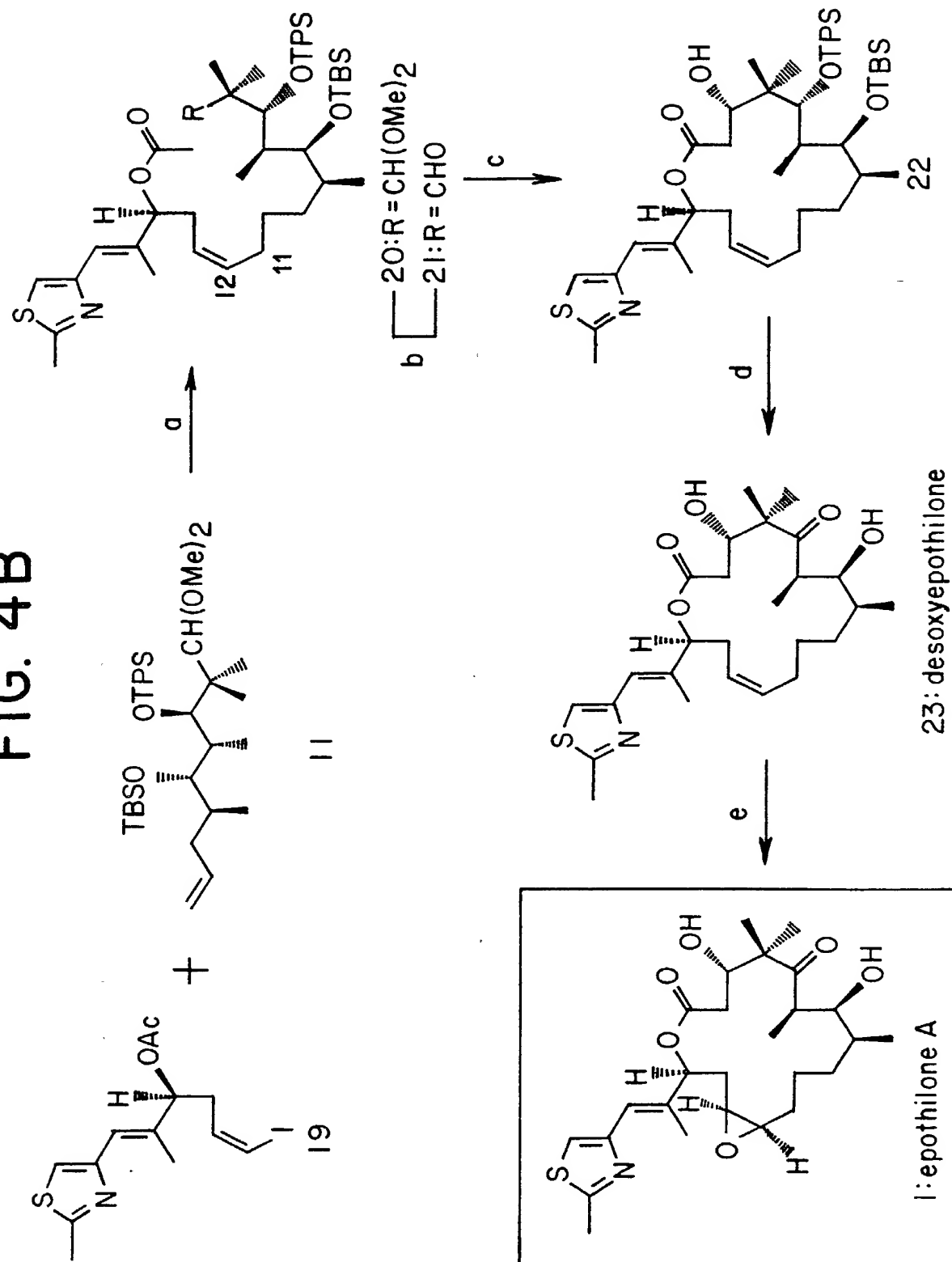


FIG. 5

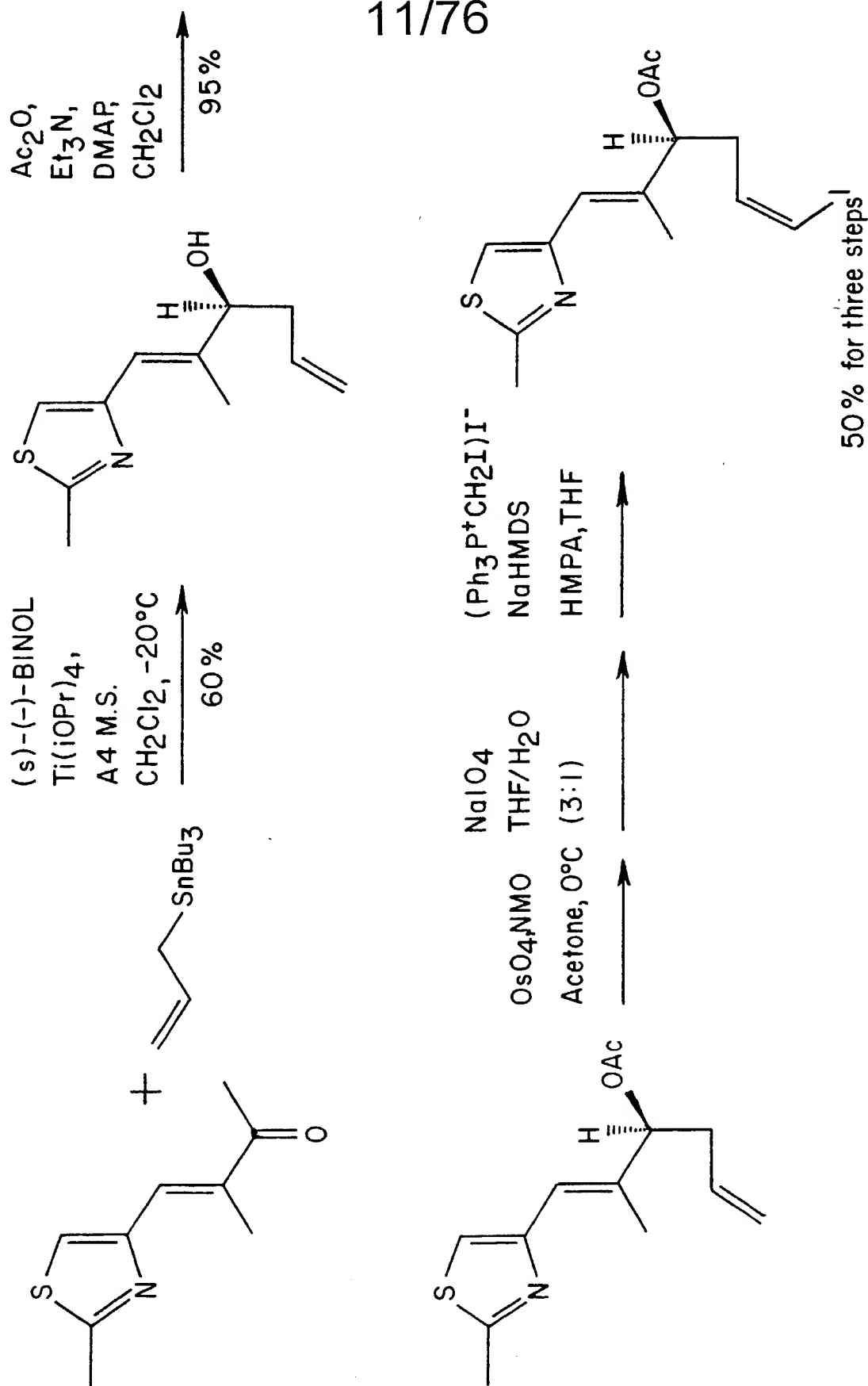
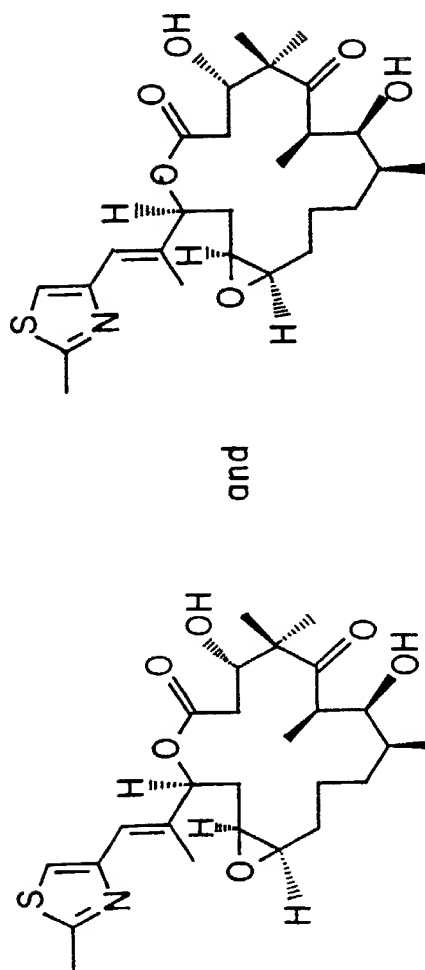
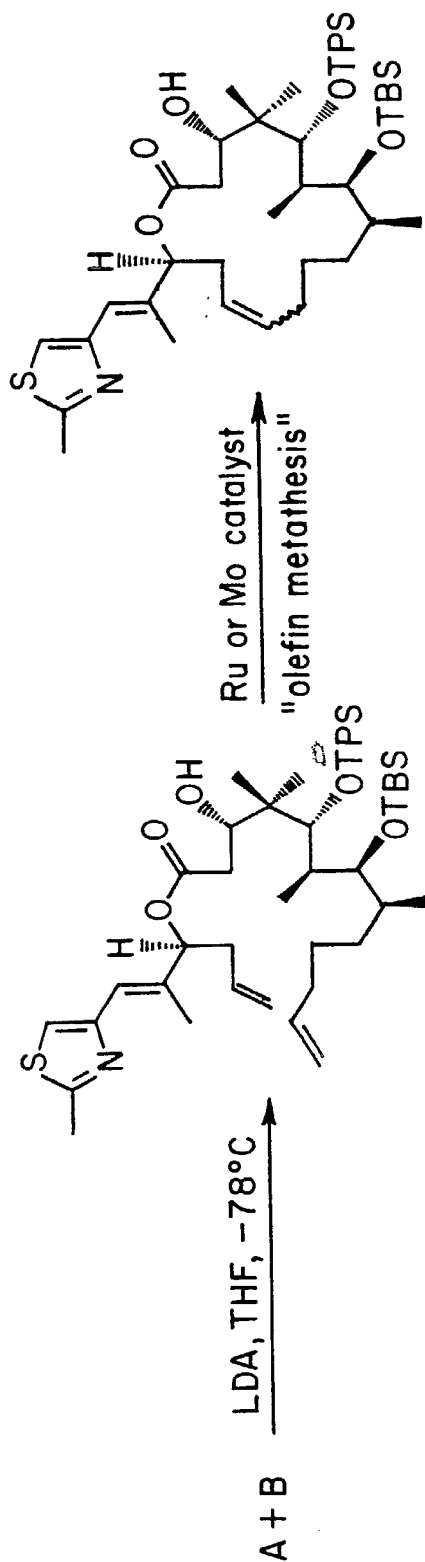


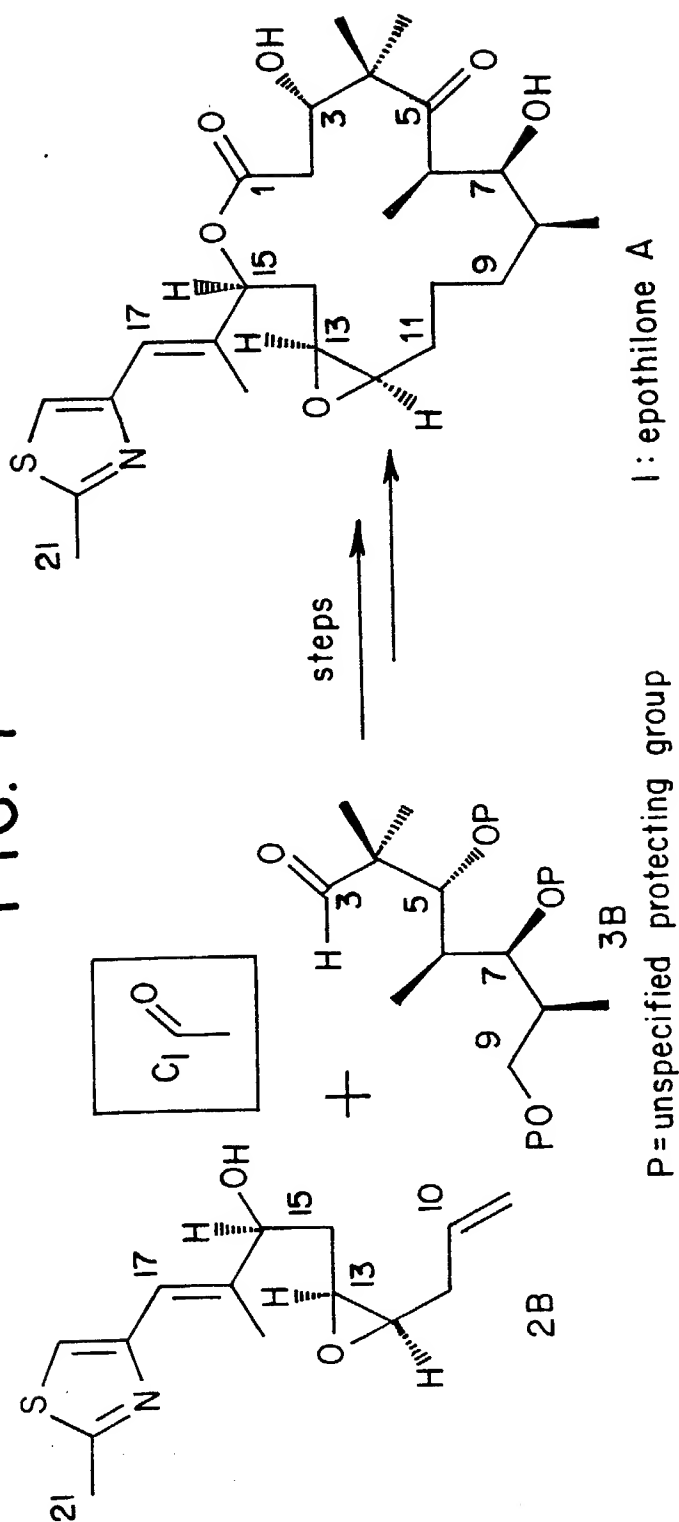


FIG. 6B

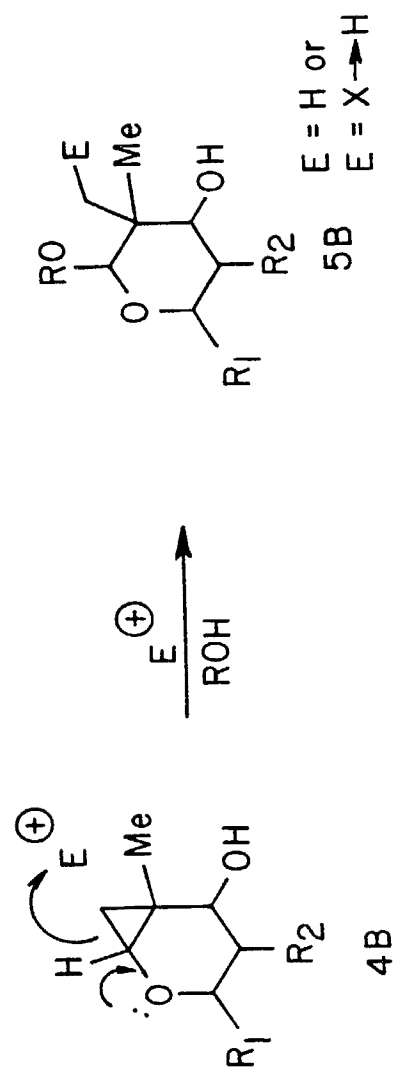


\*17 steps from known starting materials vs. 27 steps for aldol macrocyclization

FIG. 7



Convergent strategy for a total synthesis of epothilone A (1).



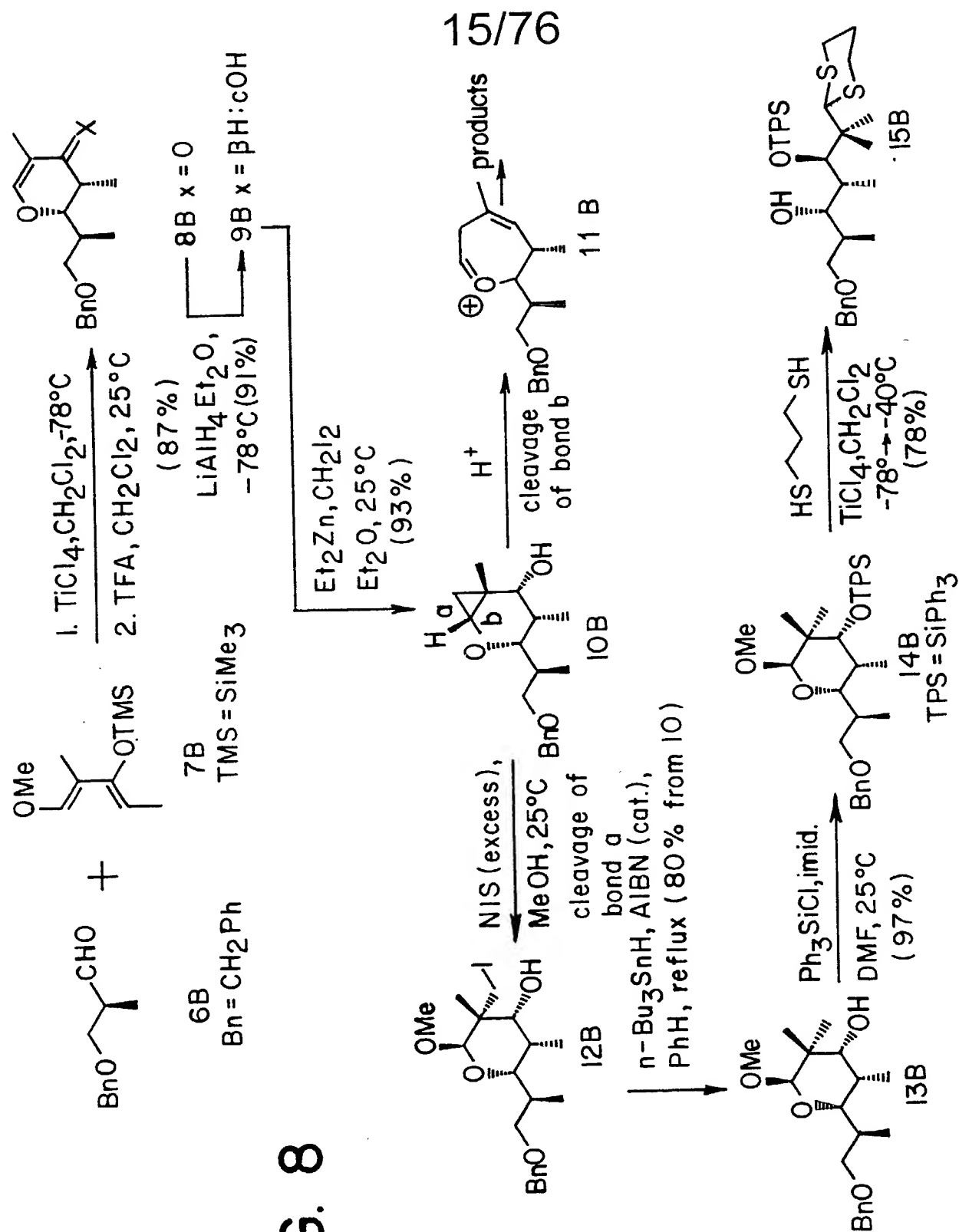
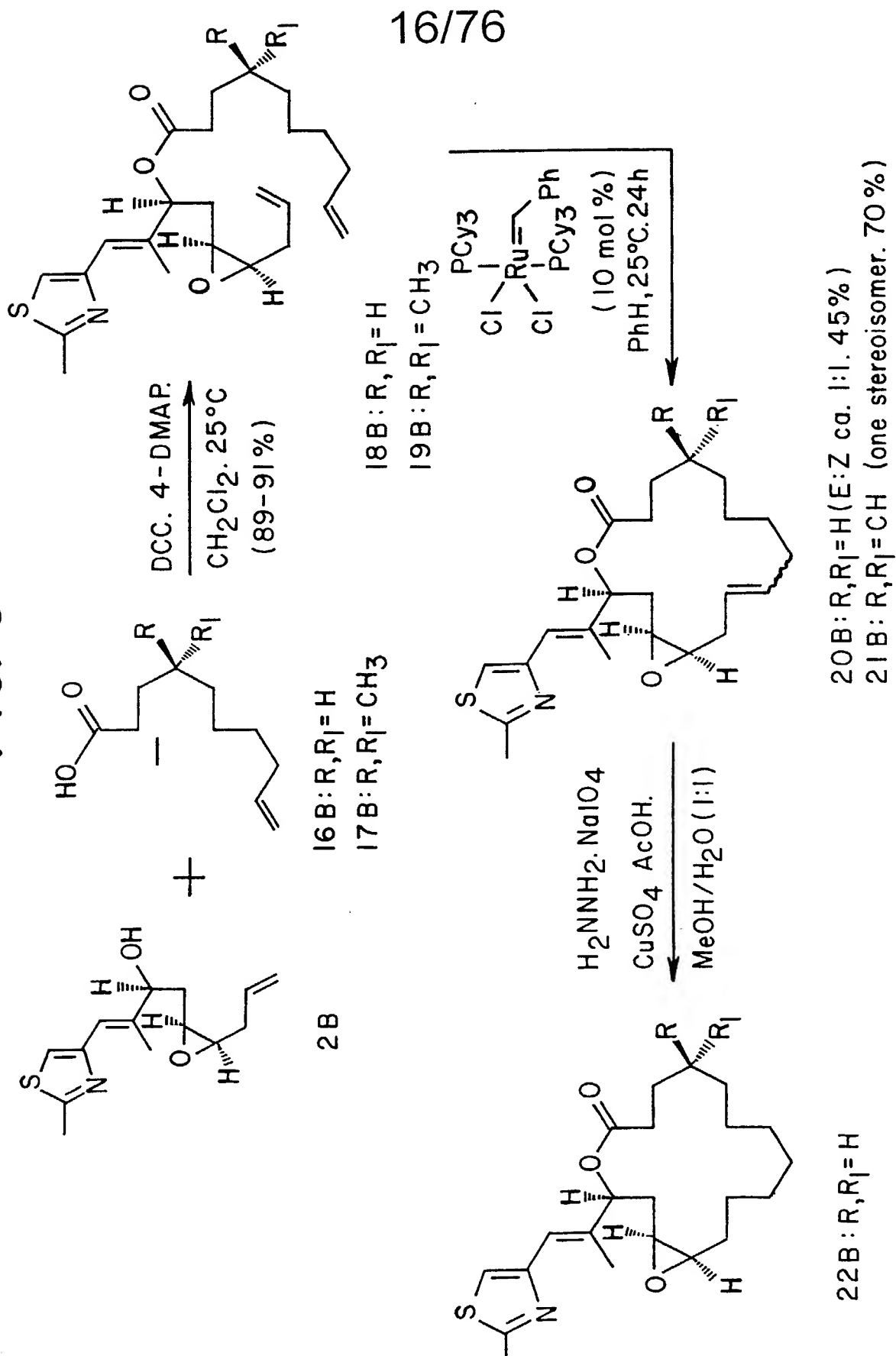


FIG. 8

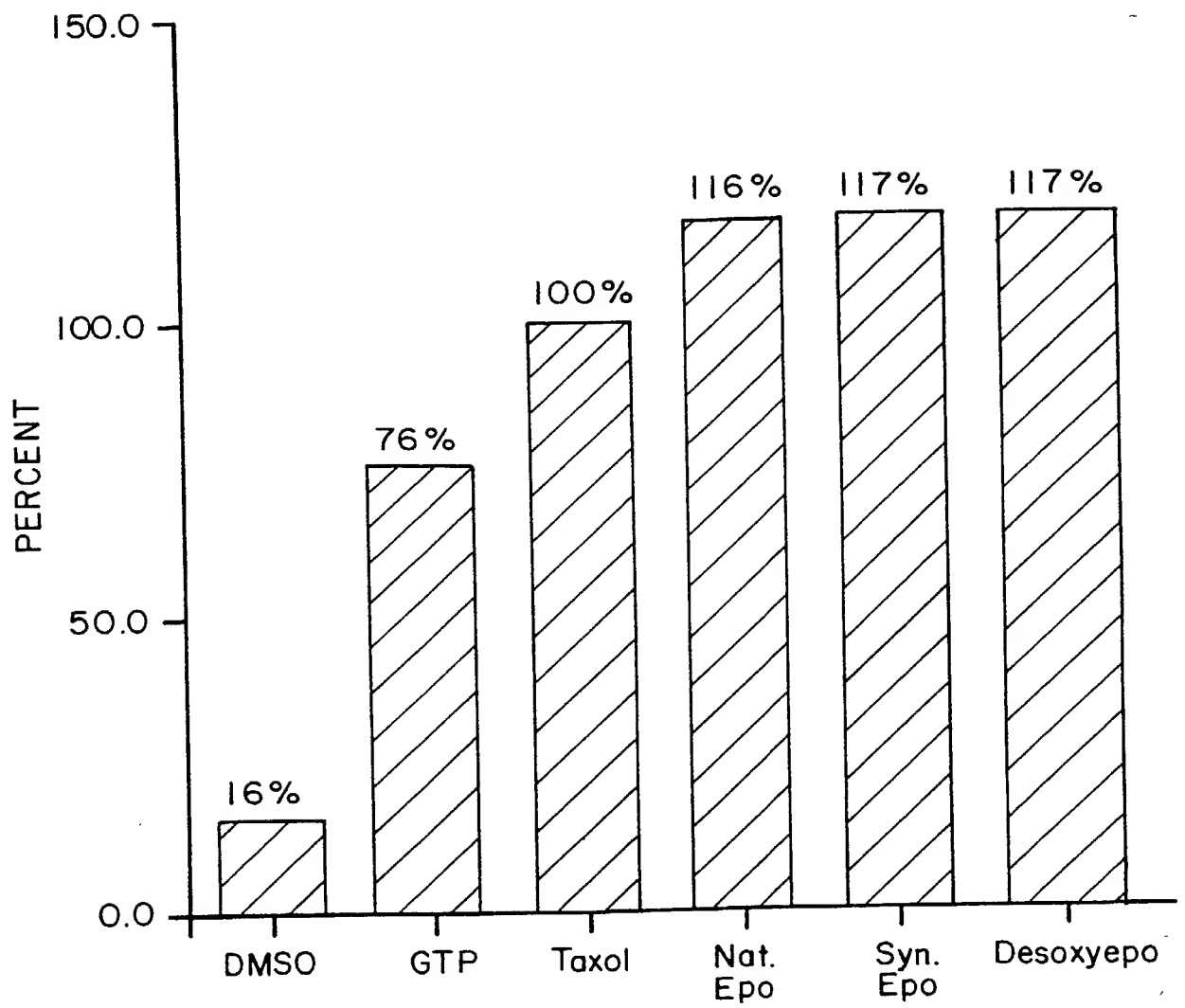
FIG. 9





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FIG. 10



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FIG. II

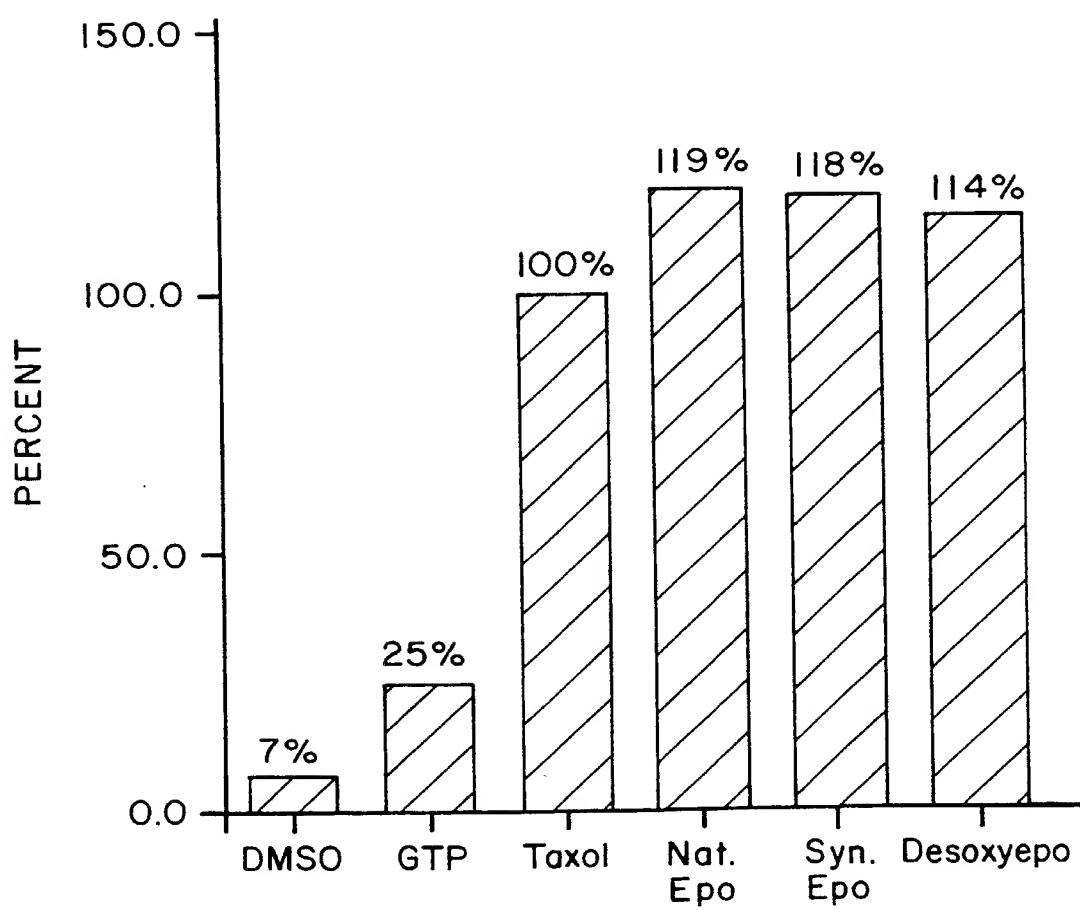


FIG. 13

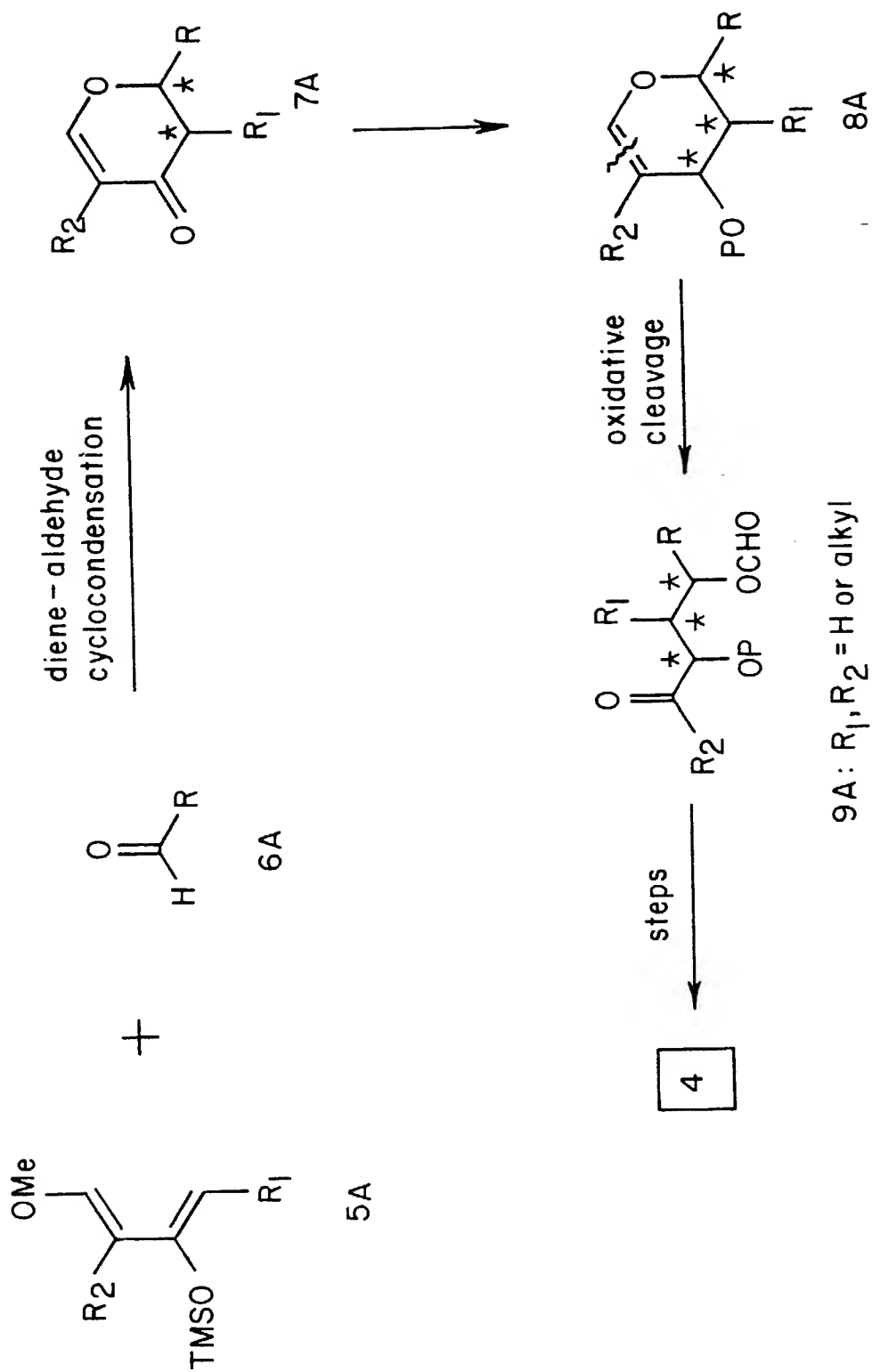
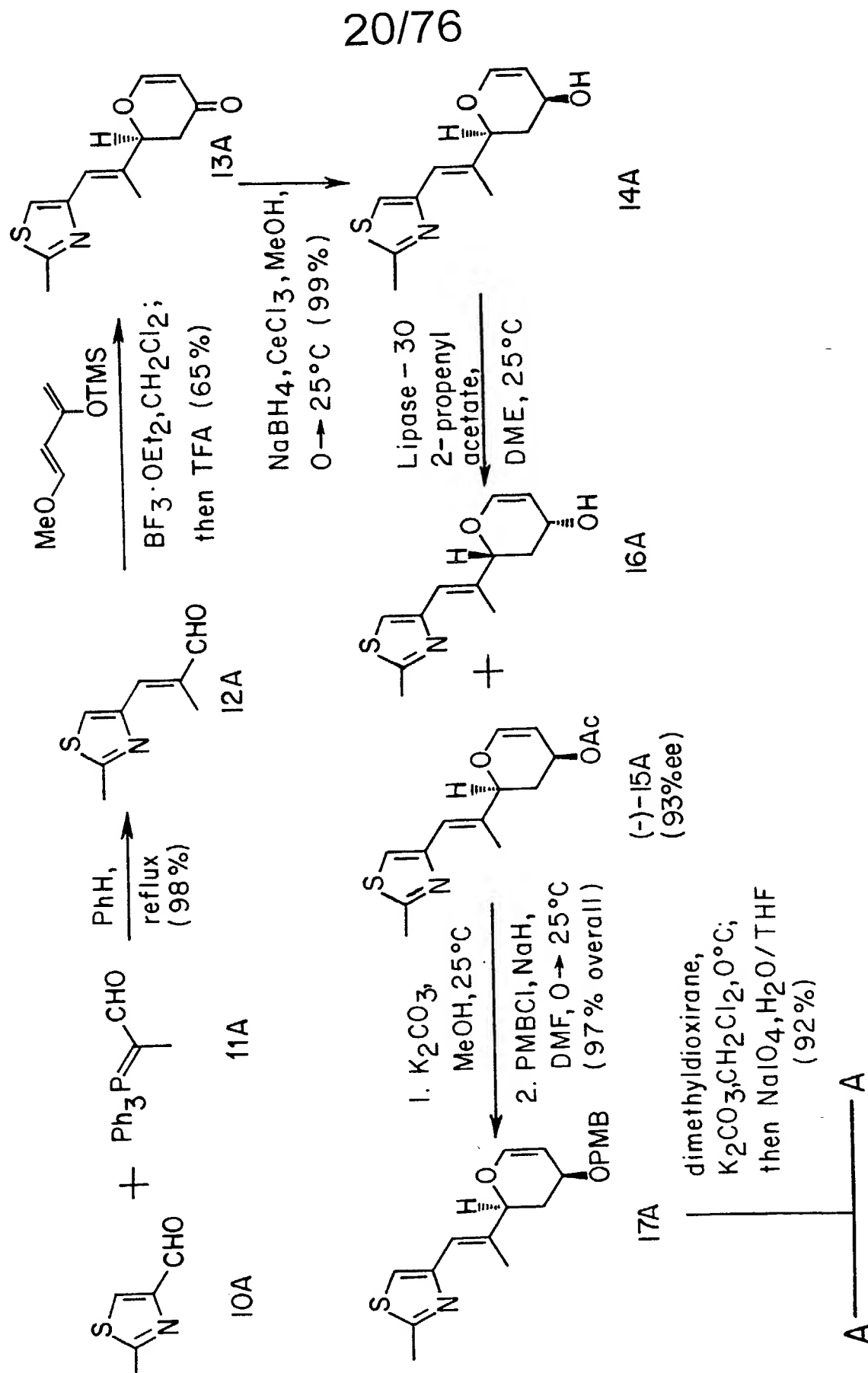


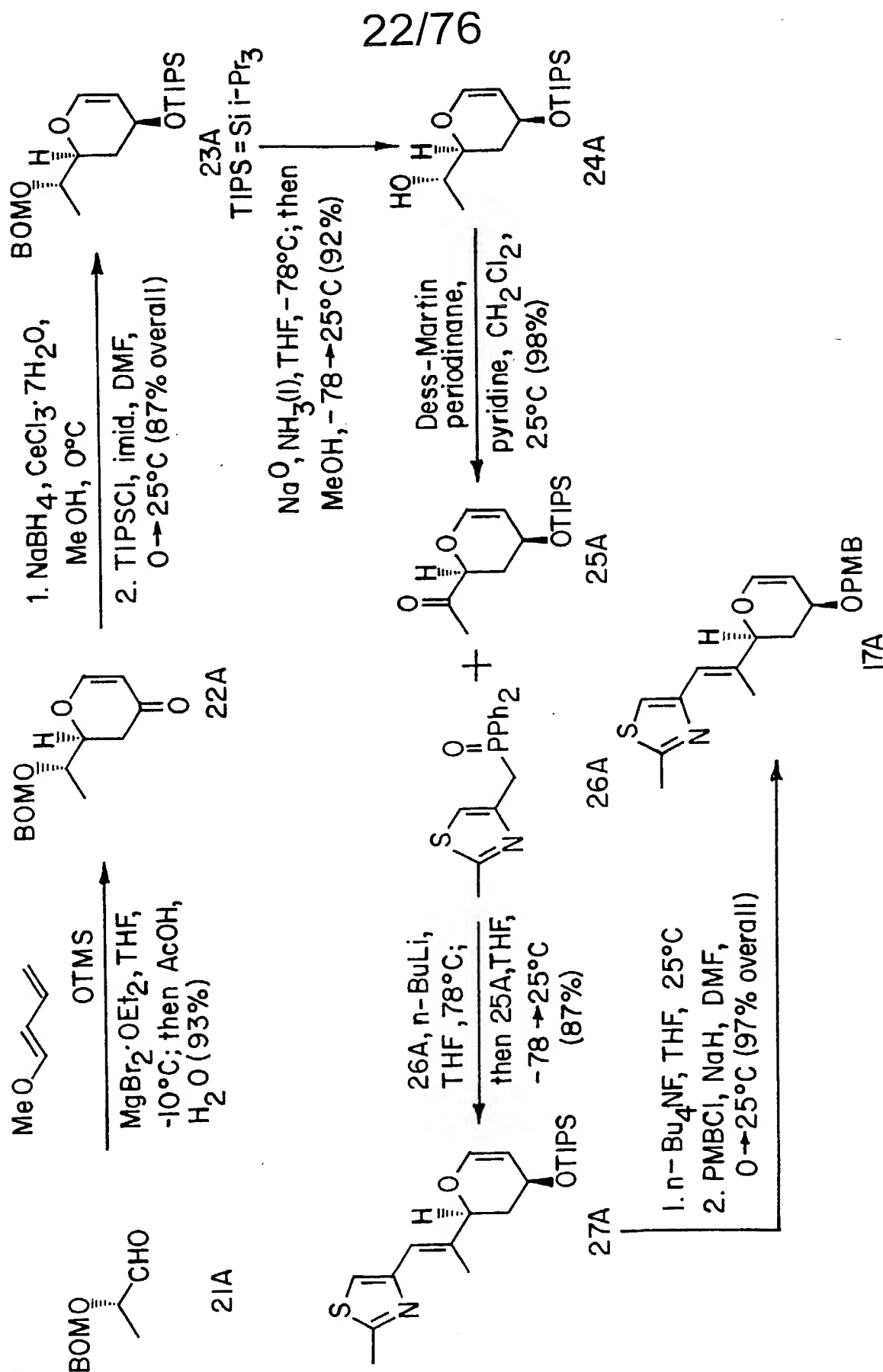
FIG. 14A



**FIG. 14B**



FIG. 15



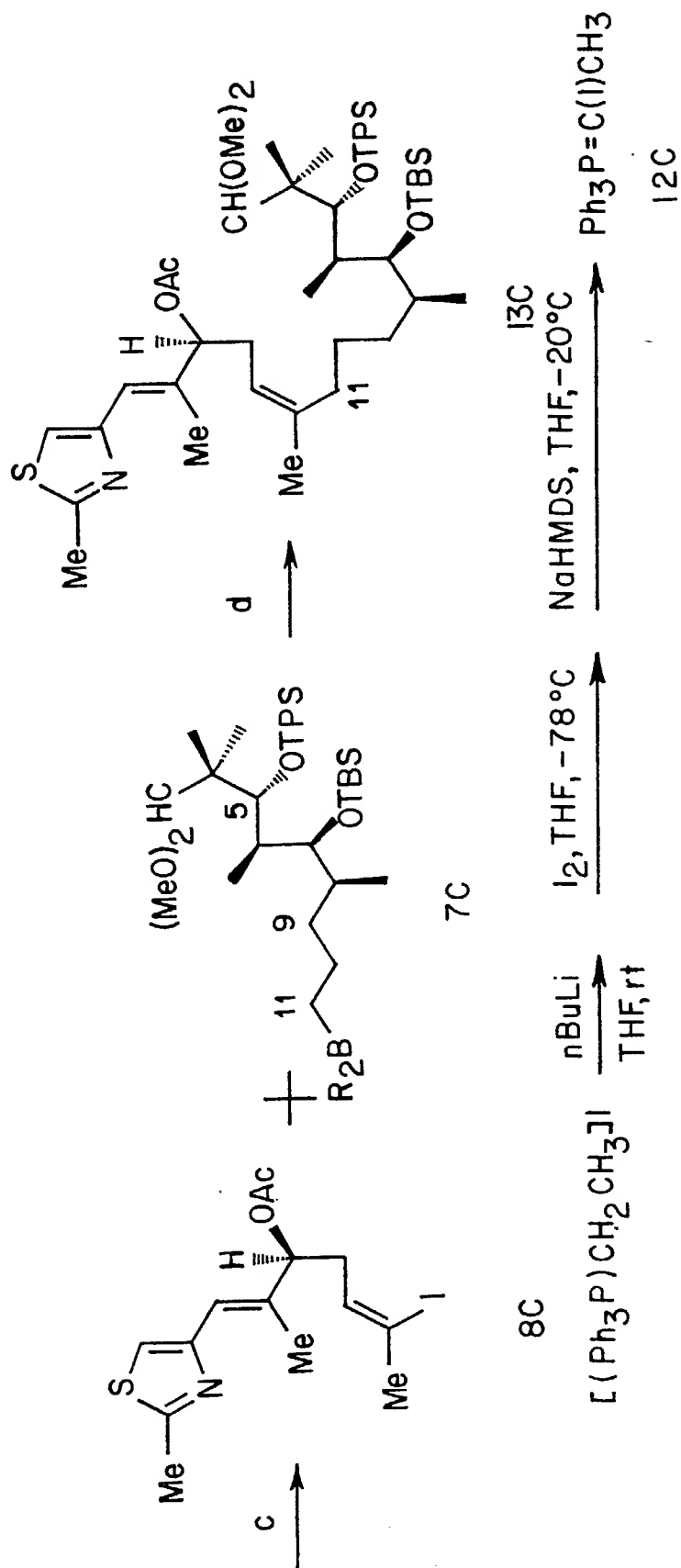
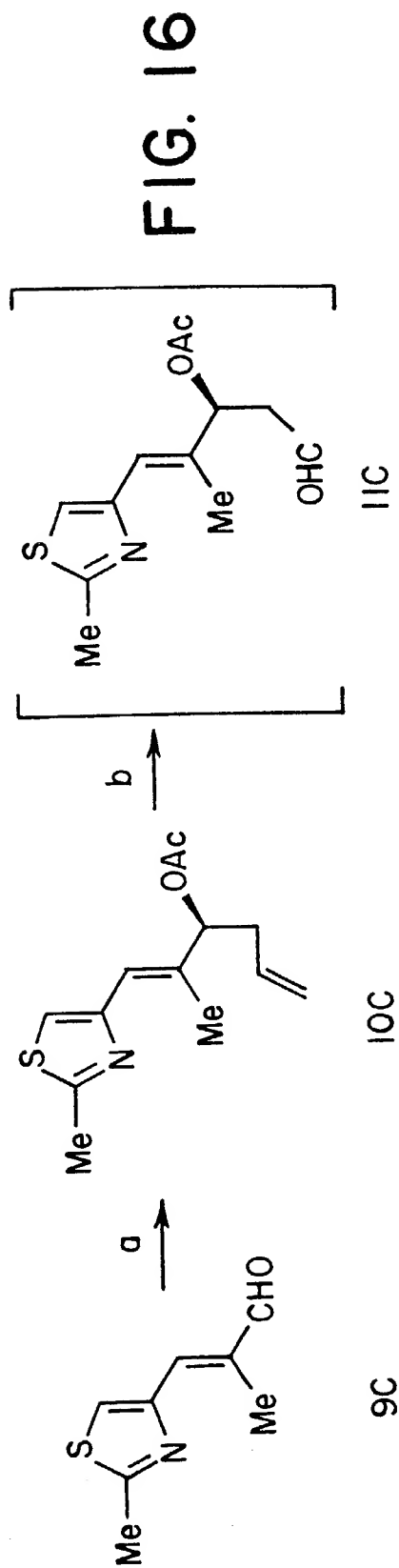
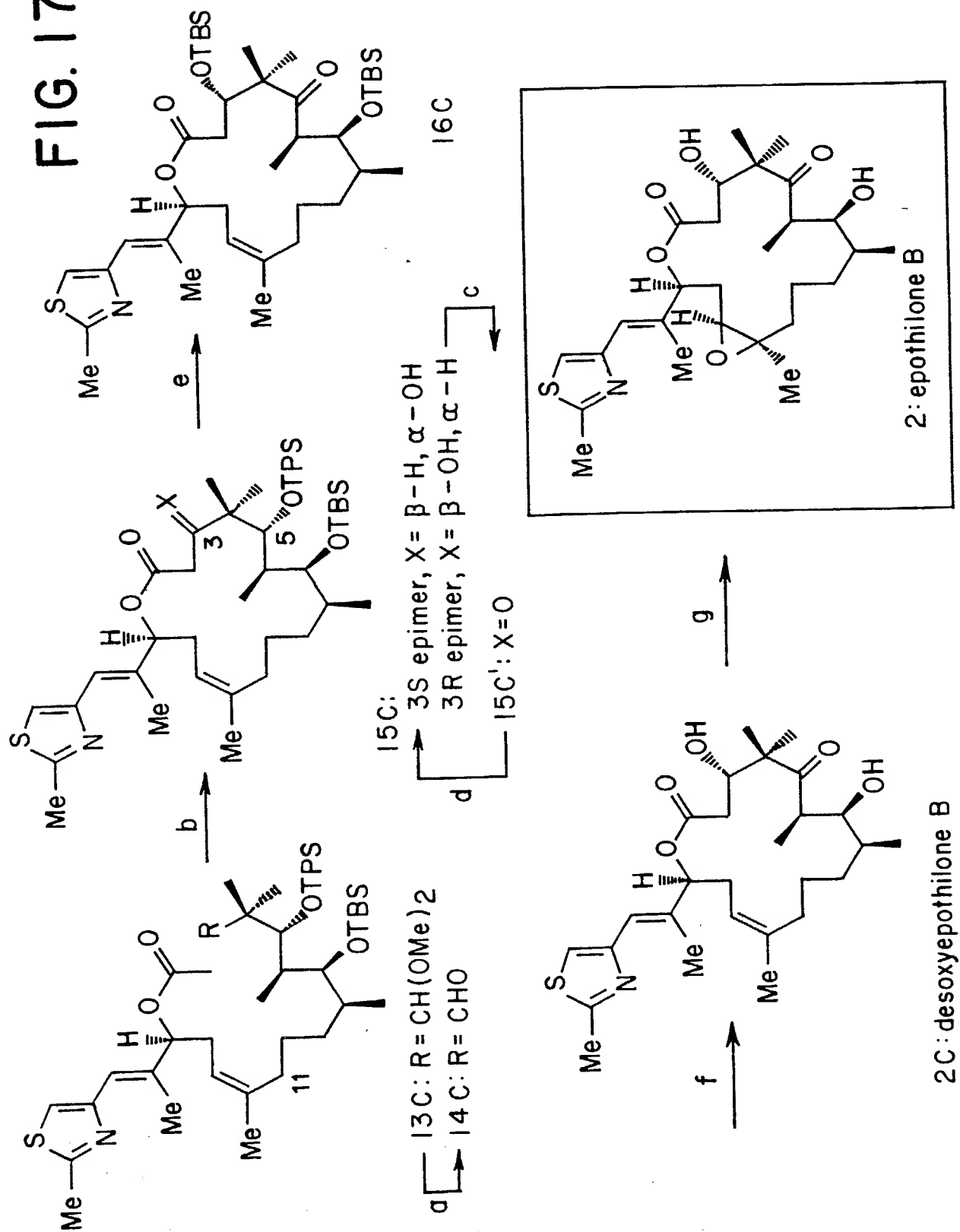


FIG. 17





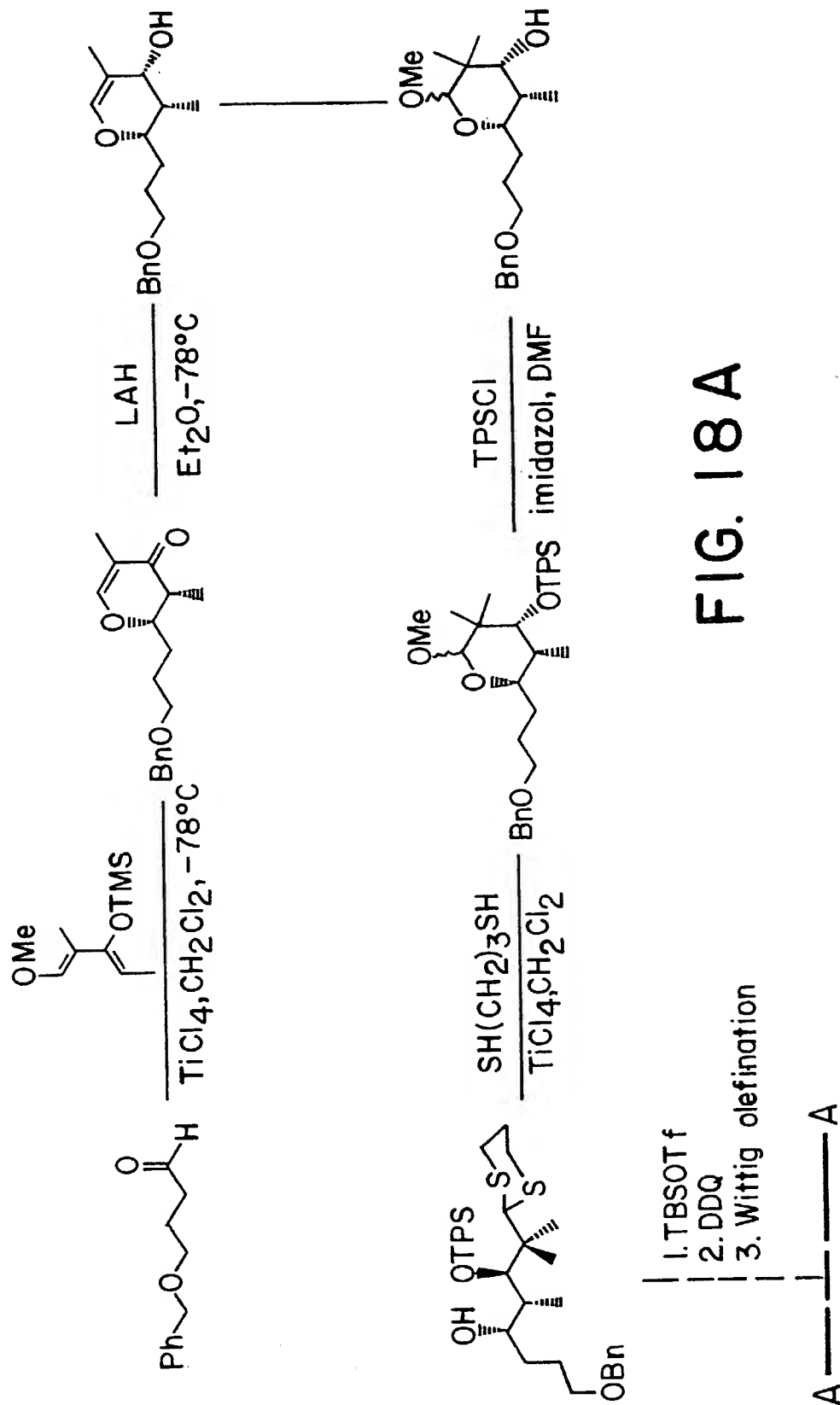


FIG. 18B

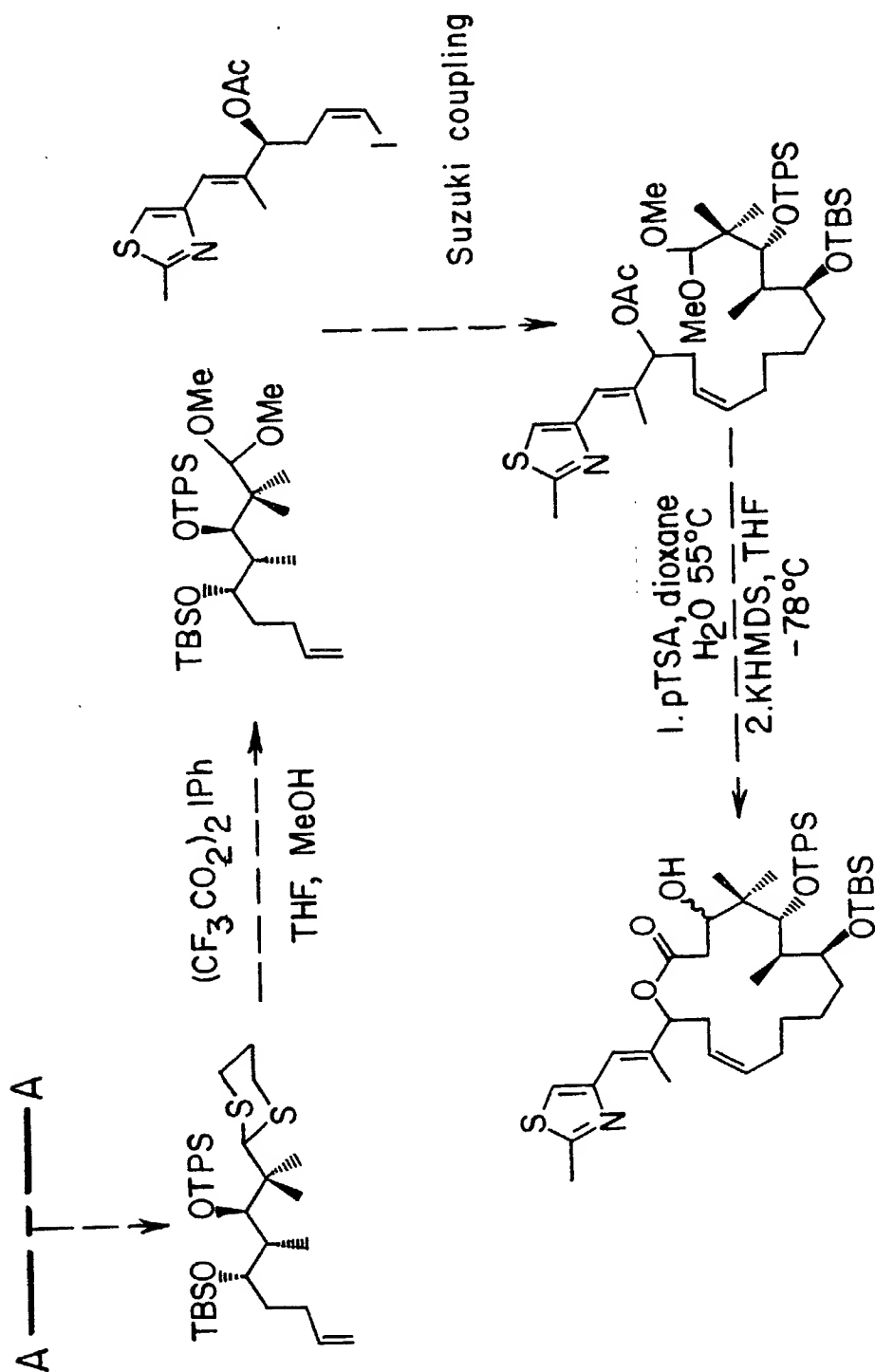
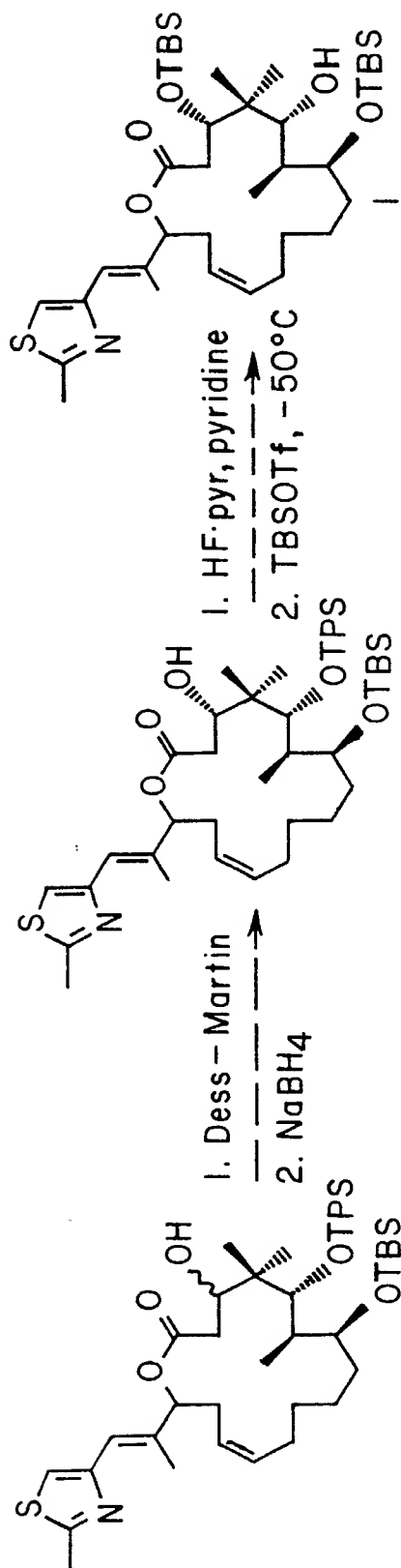
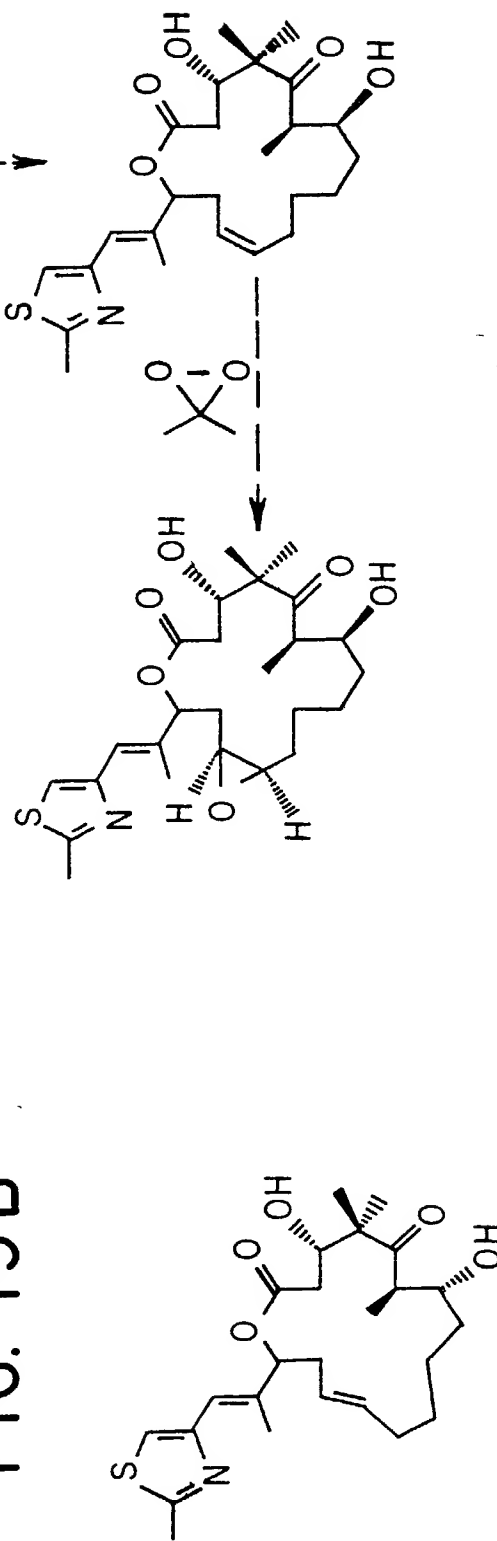


FIG. 19A



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FIG. 19B



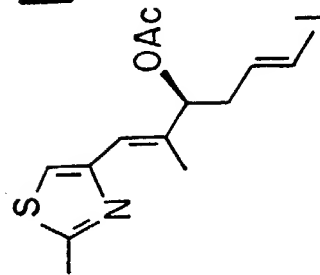


FIG. 19C

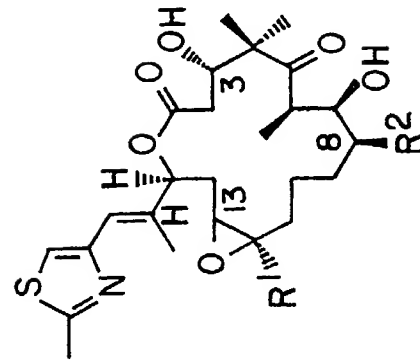


FIG. 20A

$R^1 = H, R^2 = \text{Me}; \text{epothilone A}$

$R^1 = R^2 = \text{Me}; \text{epothilone B}$

$R^1 = R^2 = H; \text{Cg-desmethyl-epothilone A (3D)}$

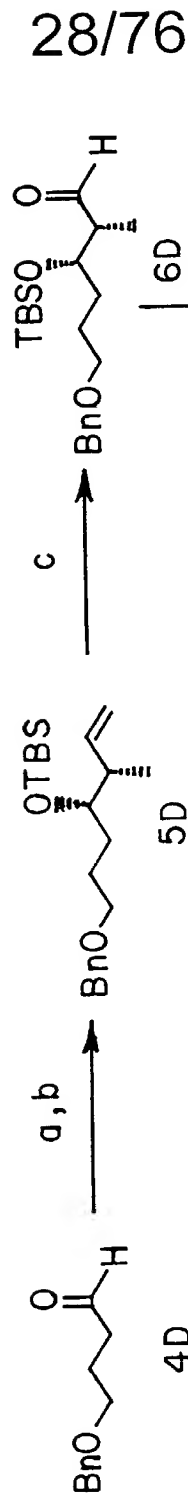
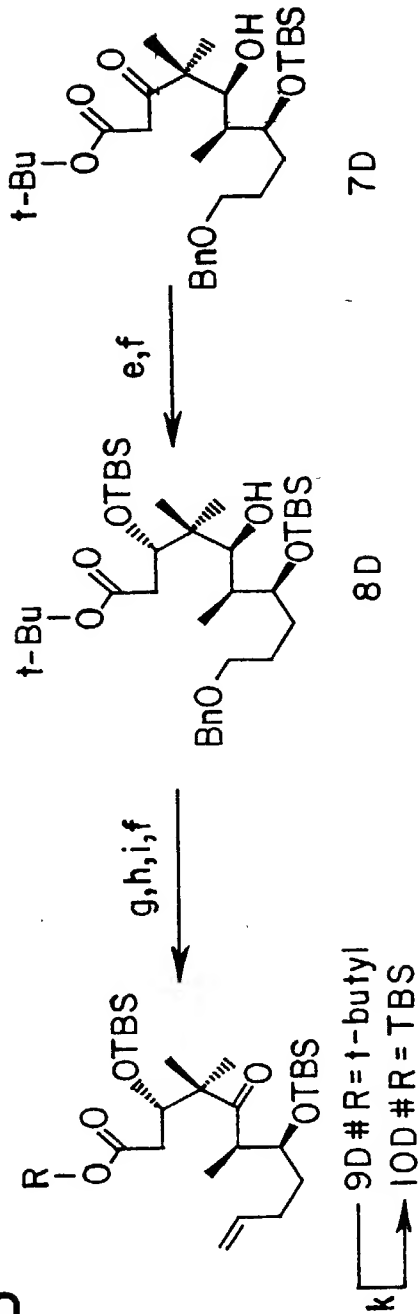


FIG. 20B



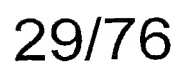
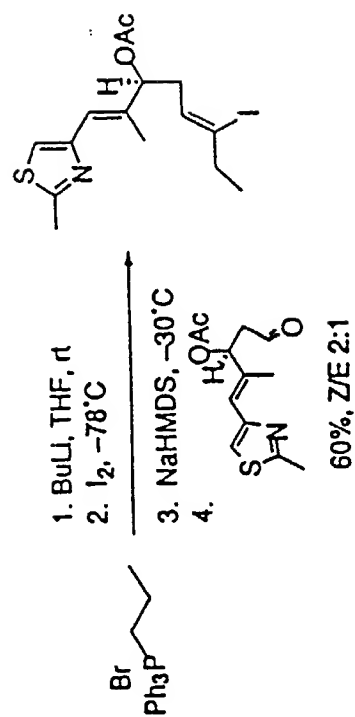


FIG. 22A



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FIG. 22B

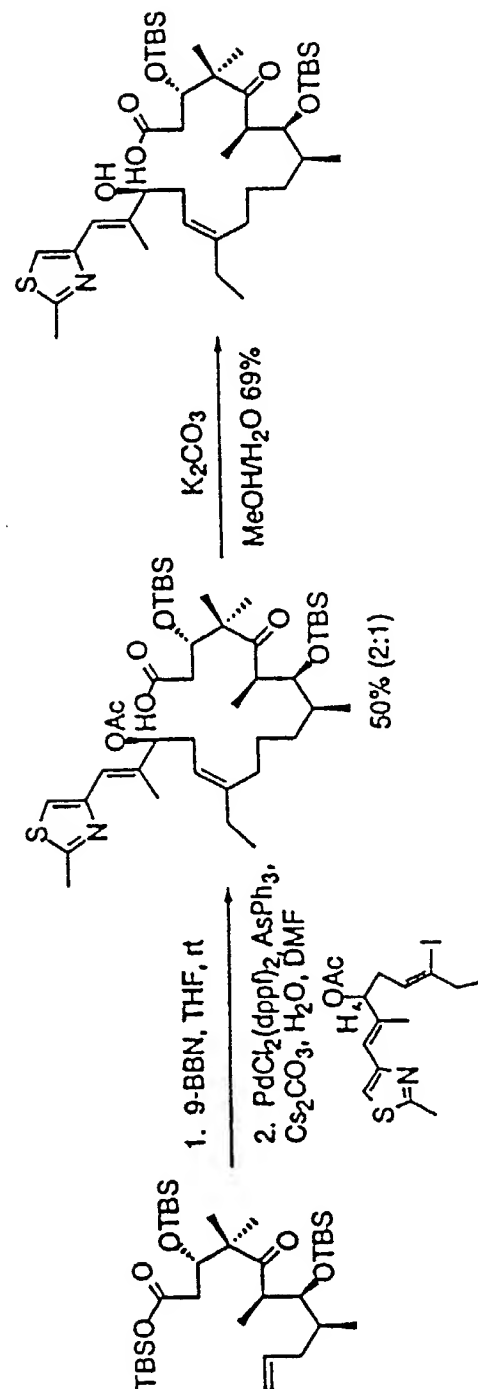
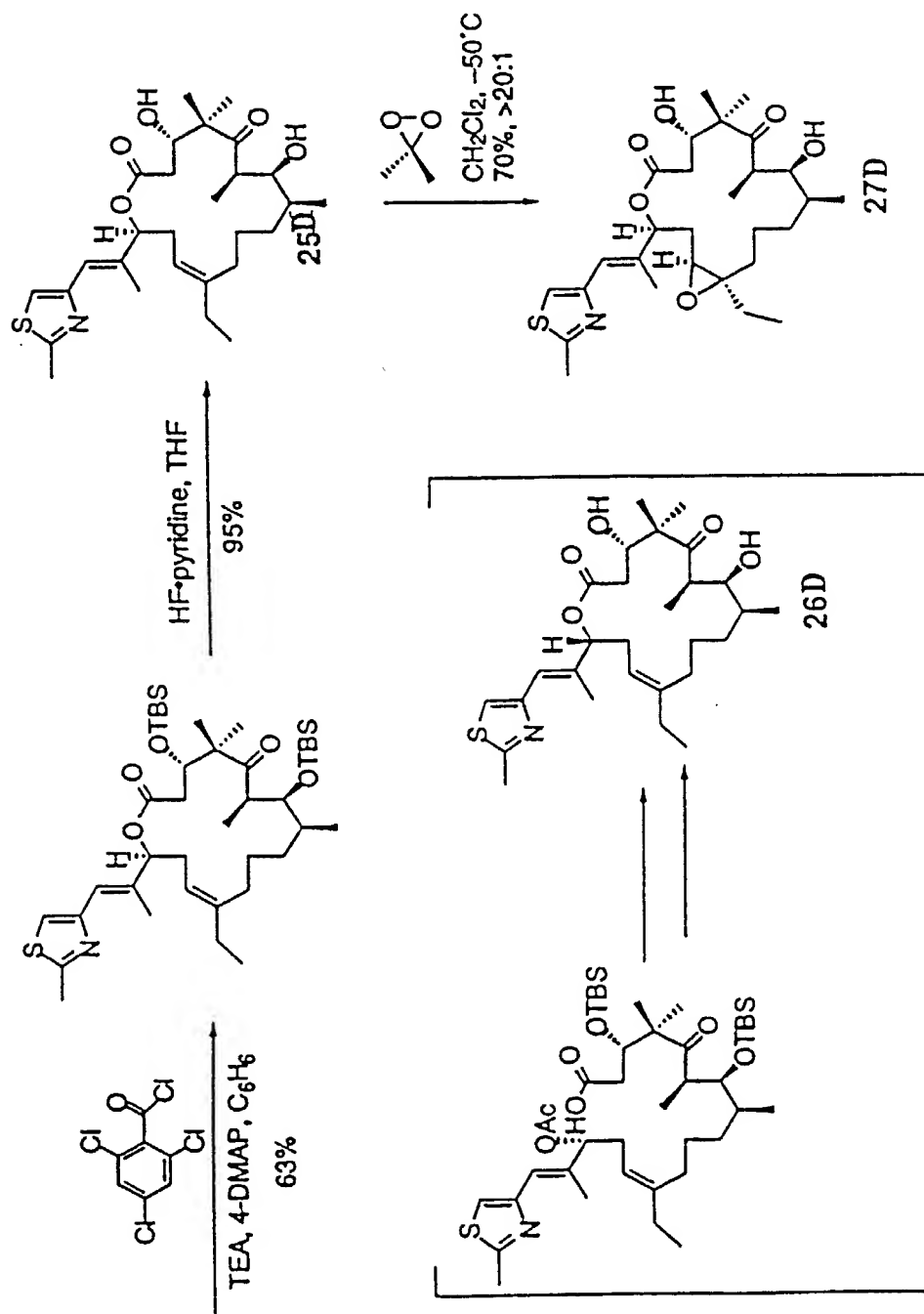
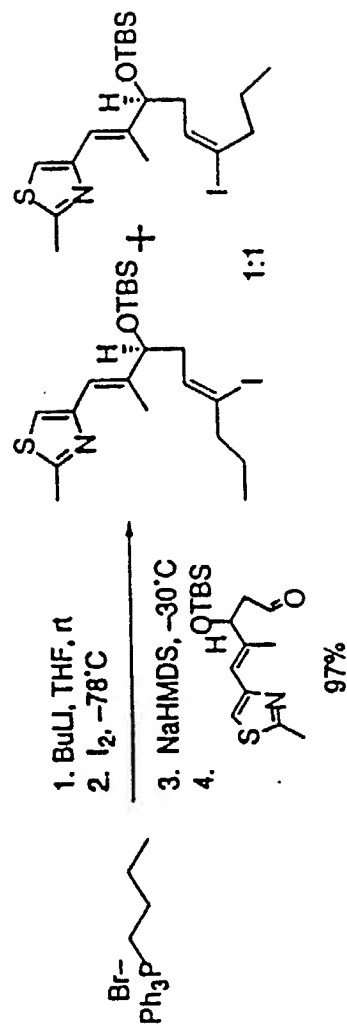


FIG. 22C



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FIG. 23A



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FIG. 23B

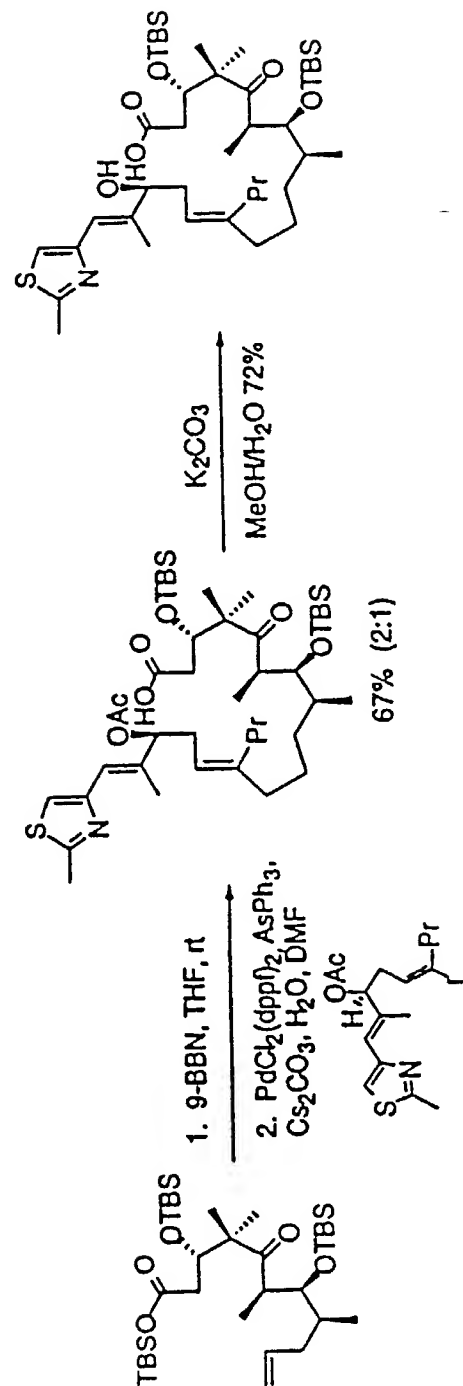




FIG. 23C

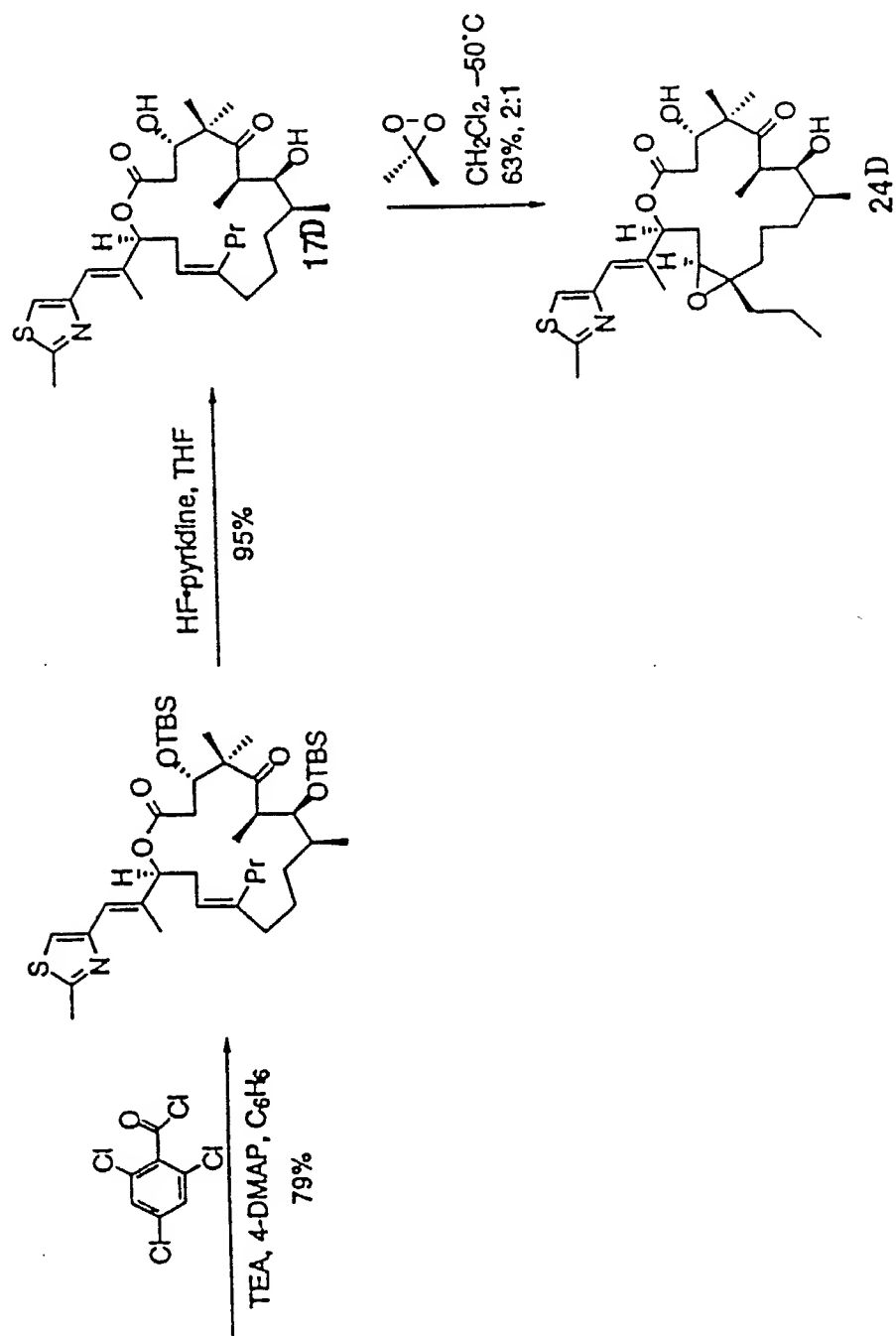
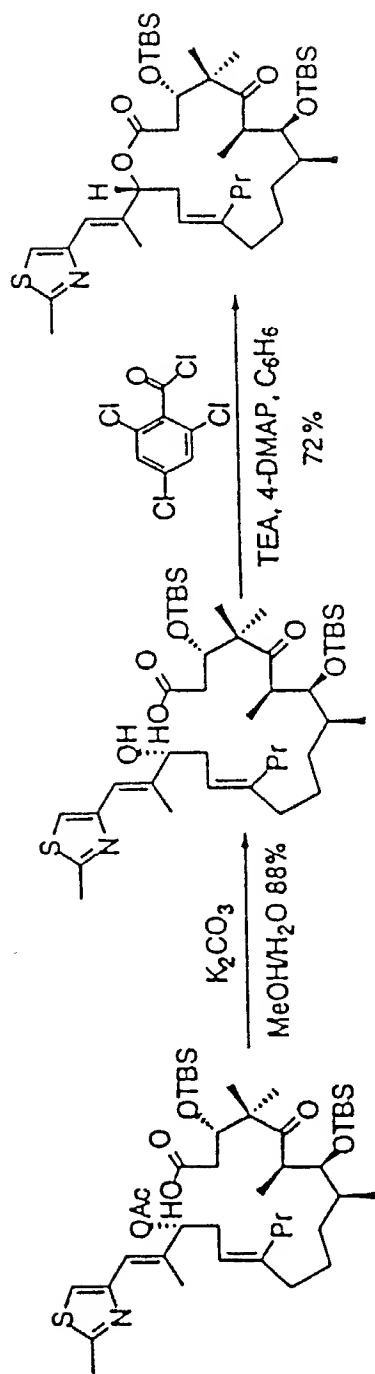


FIG. 24A



minor product from suzuki  
coupling reaction

FIG. 24B

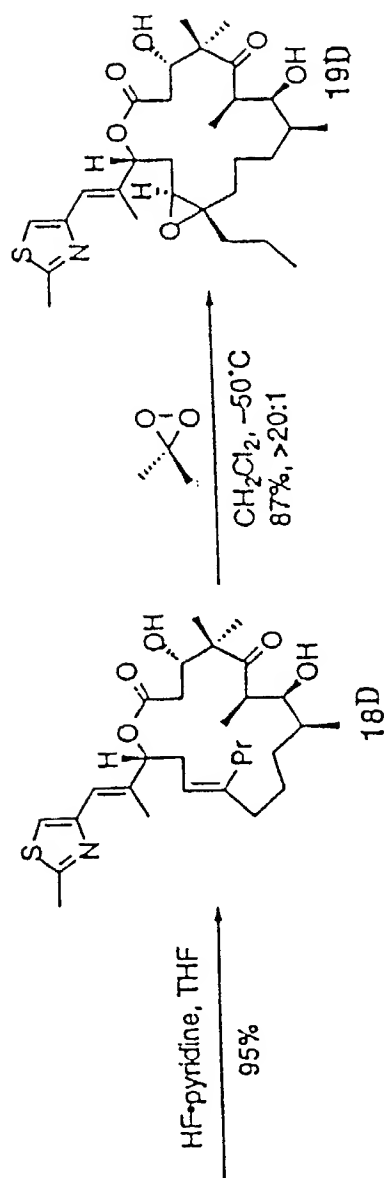


FIG. 25A

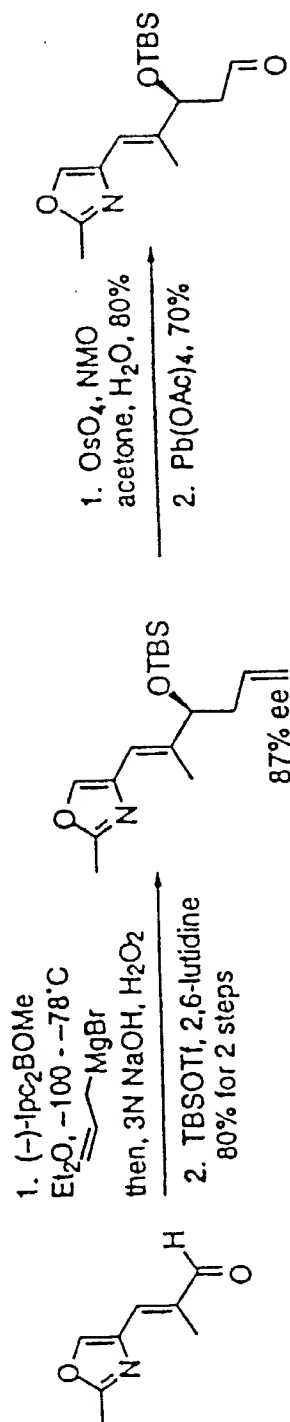


FIG. 25B

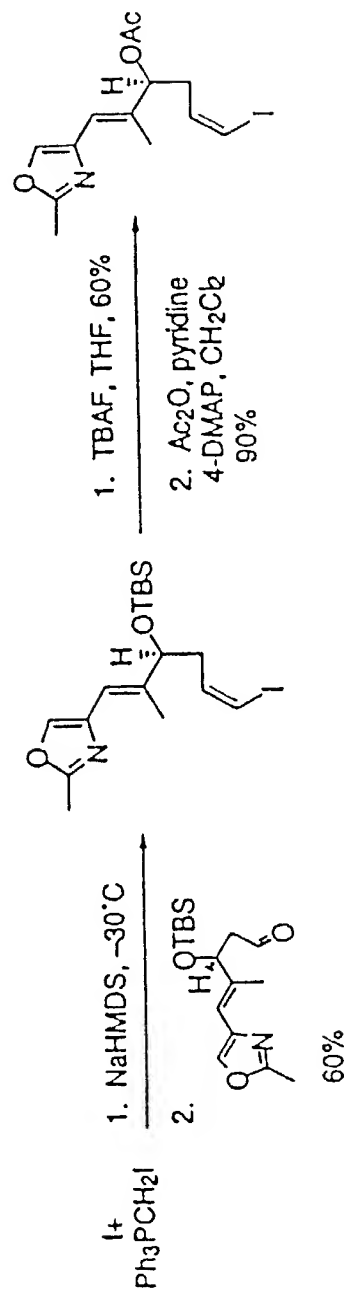


FIG. 25C

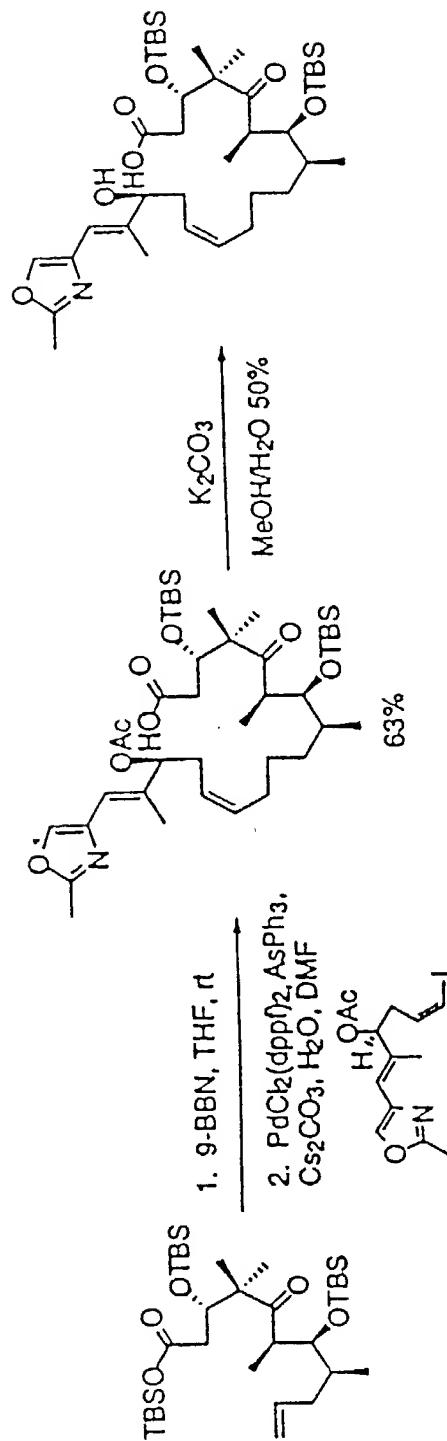


FIG. 25D

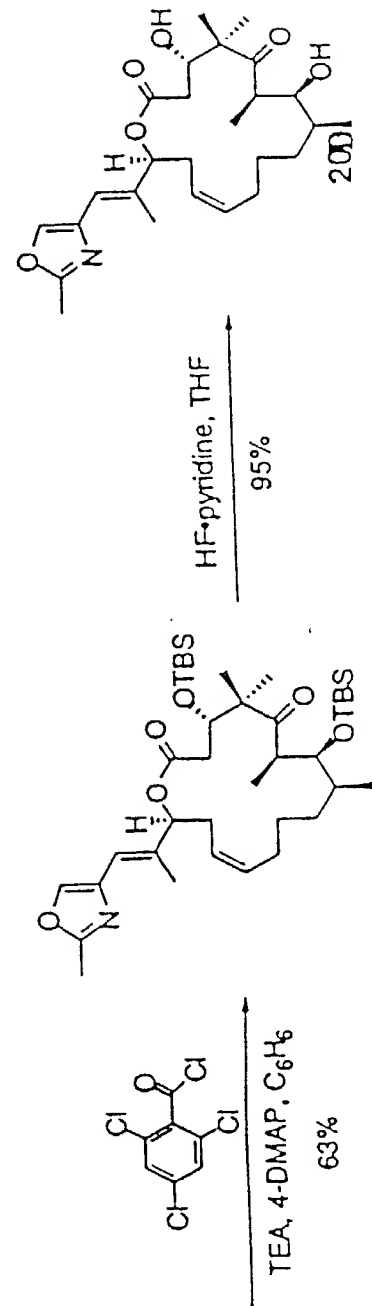
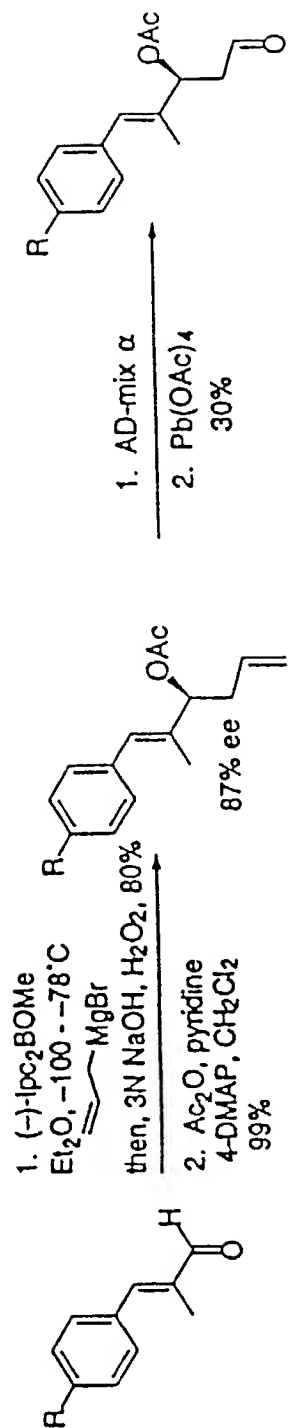
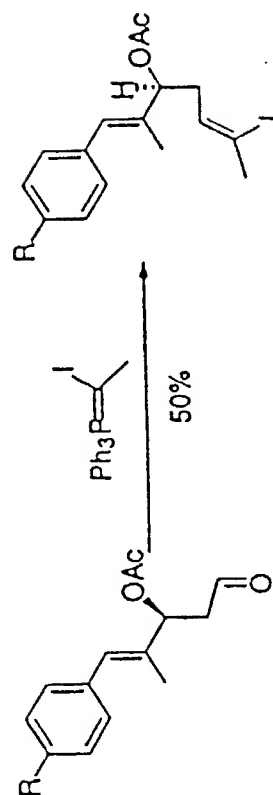


FIG. 26A



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FIG. 26B



R = H, F,  $\text{CF}_3$   
 R=H is the only compound  
 completed, F and  $\text{CF}_3$  are nearly  
 completed

FIG. 26C

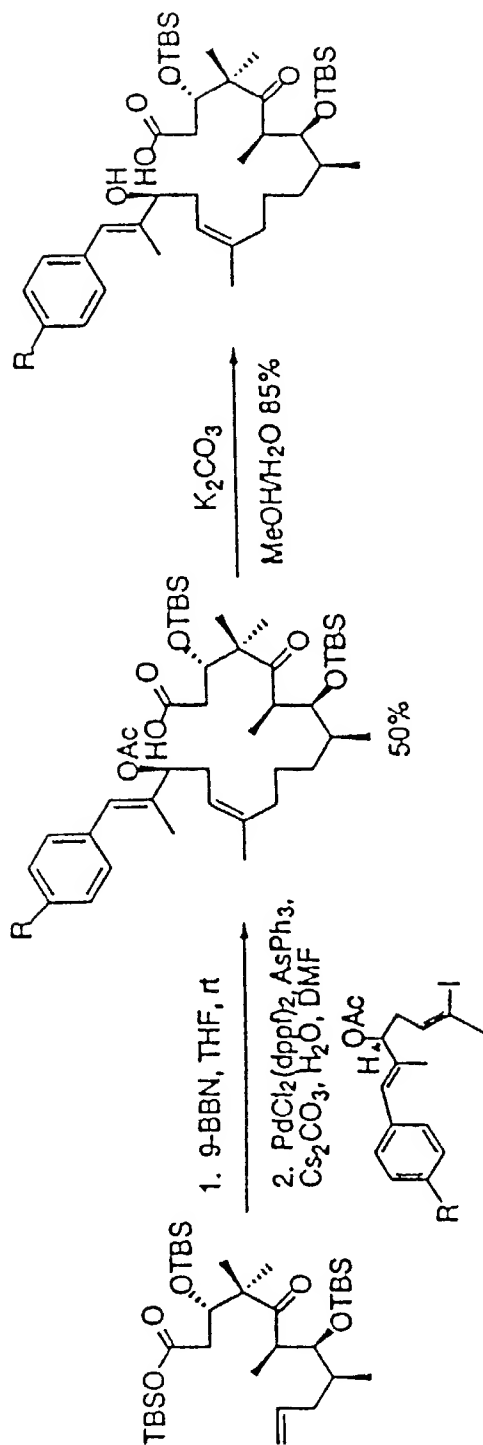
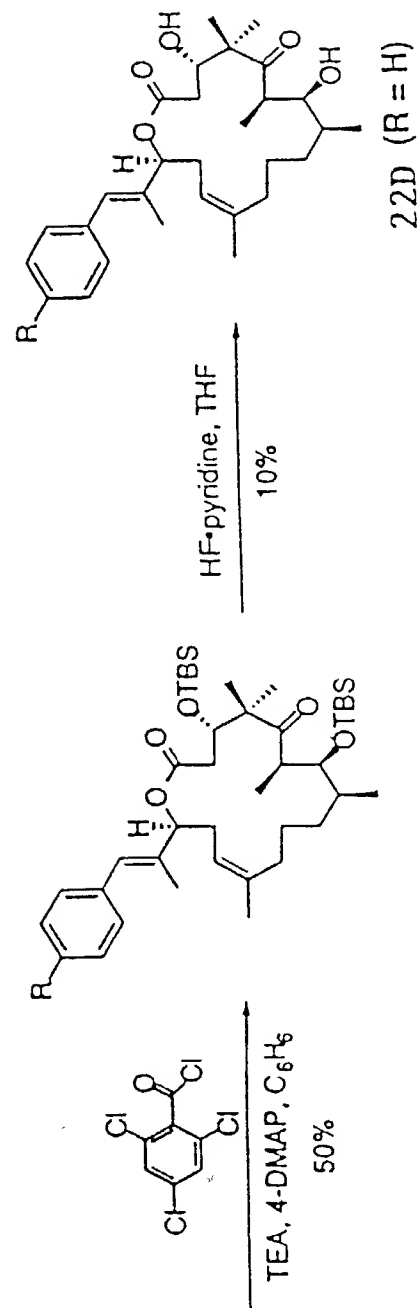


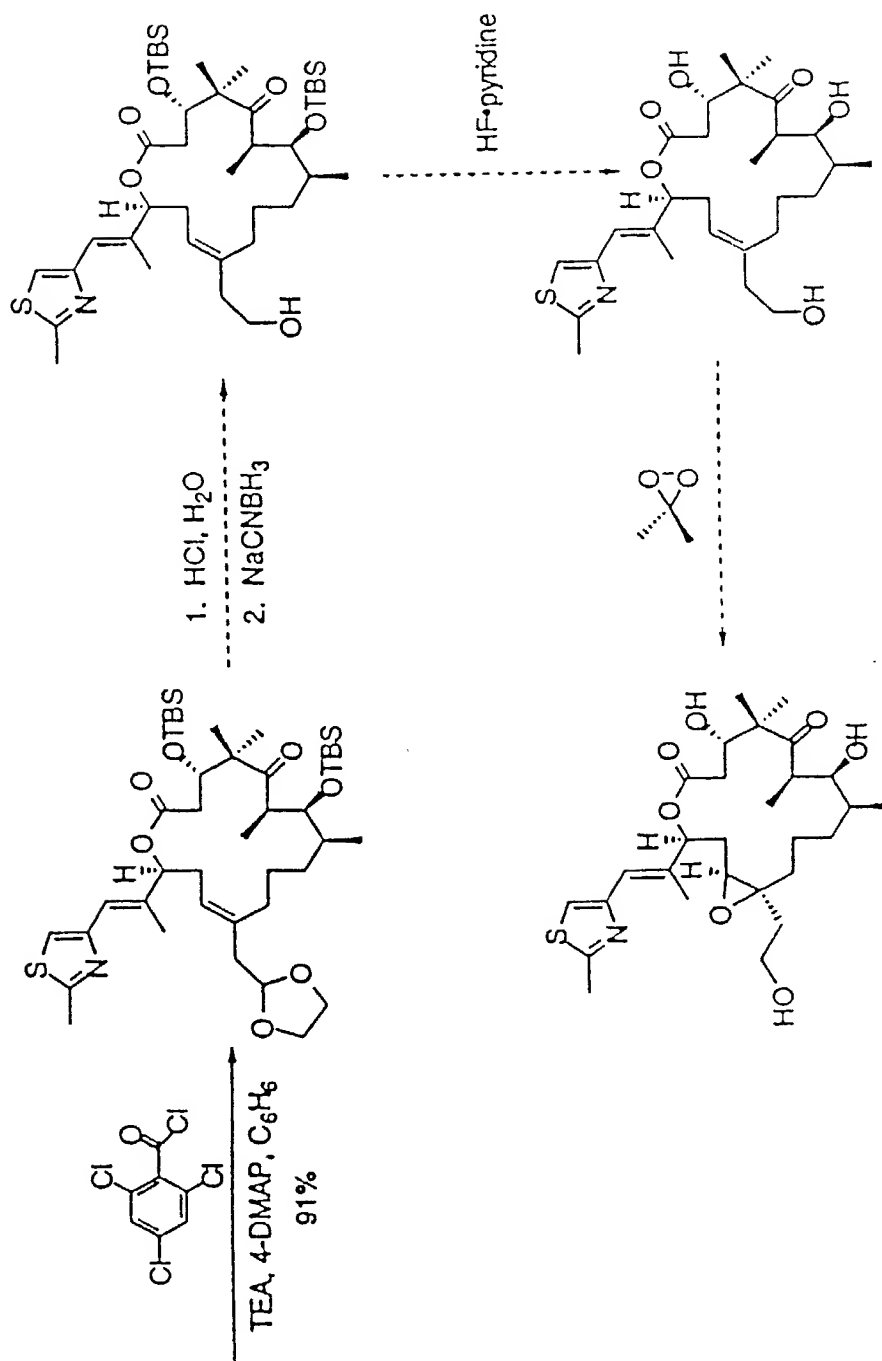
FIG. 26D





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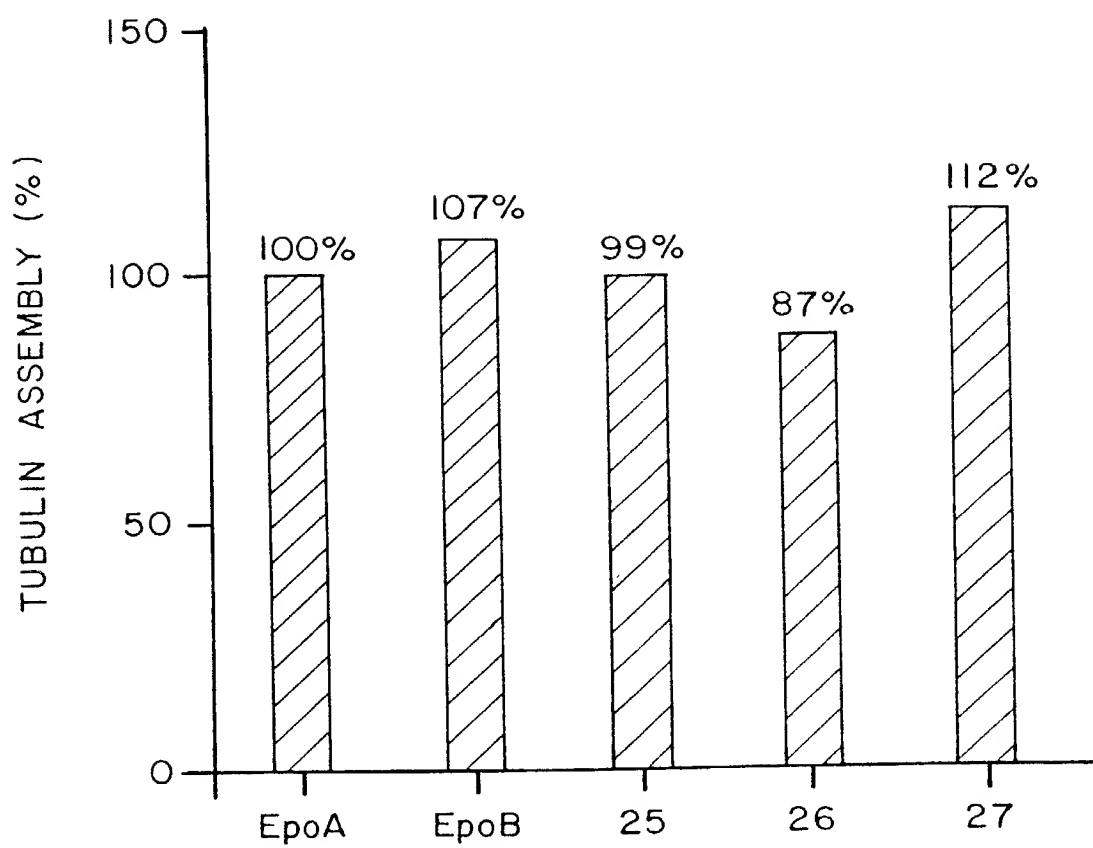
FIG. 27C





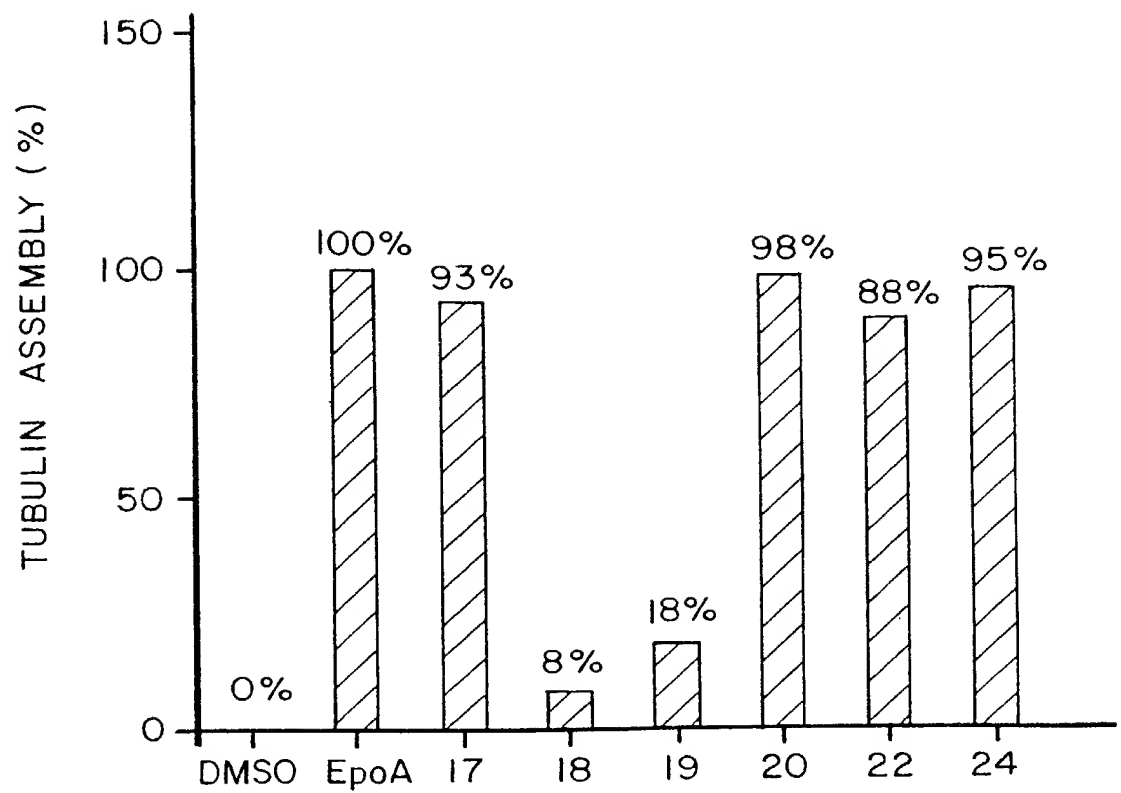
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FIG. 28A



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FIG. 28B



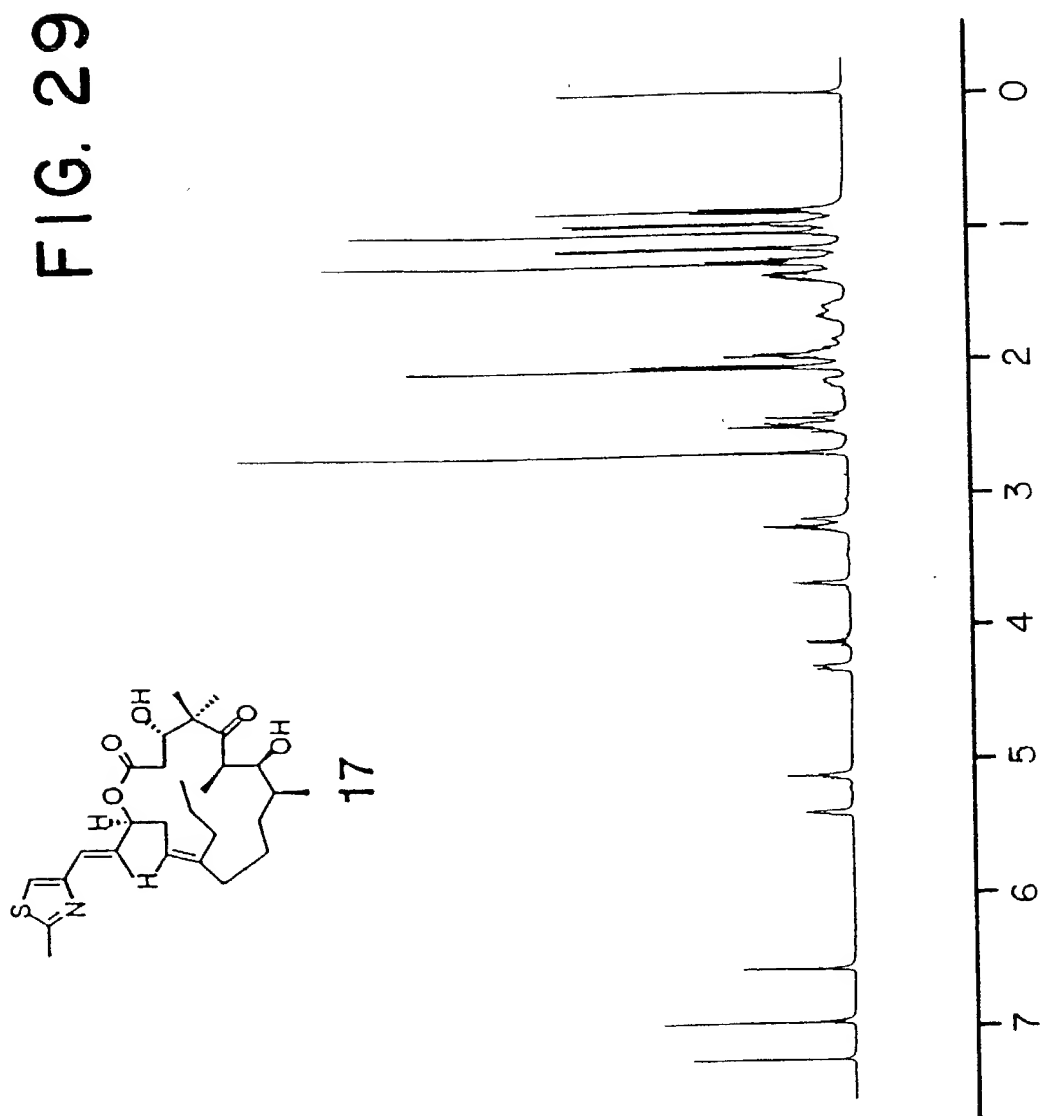


FIG. 30

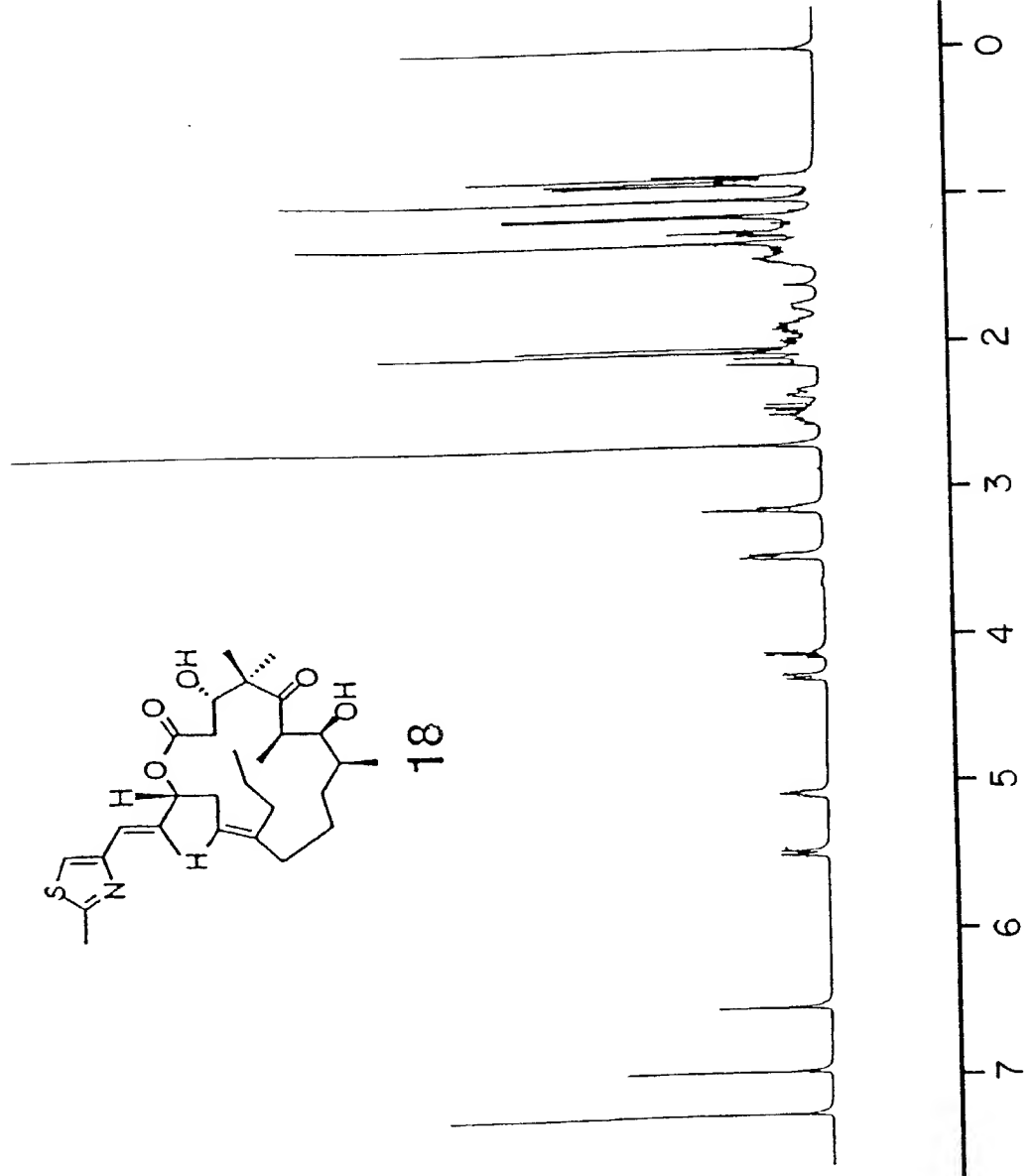


FIG. 31

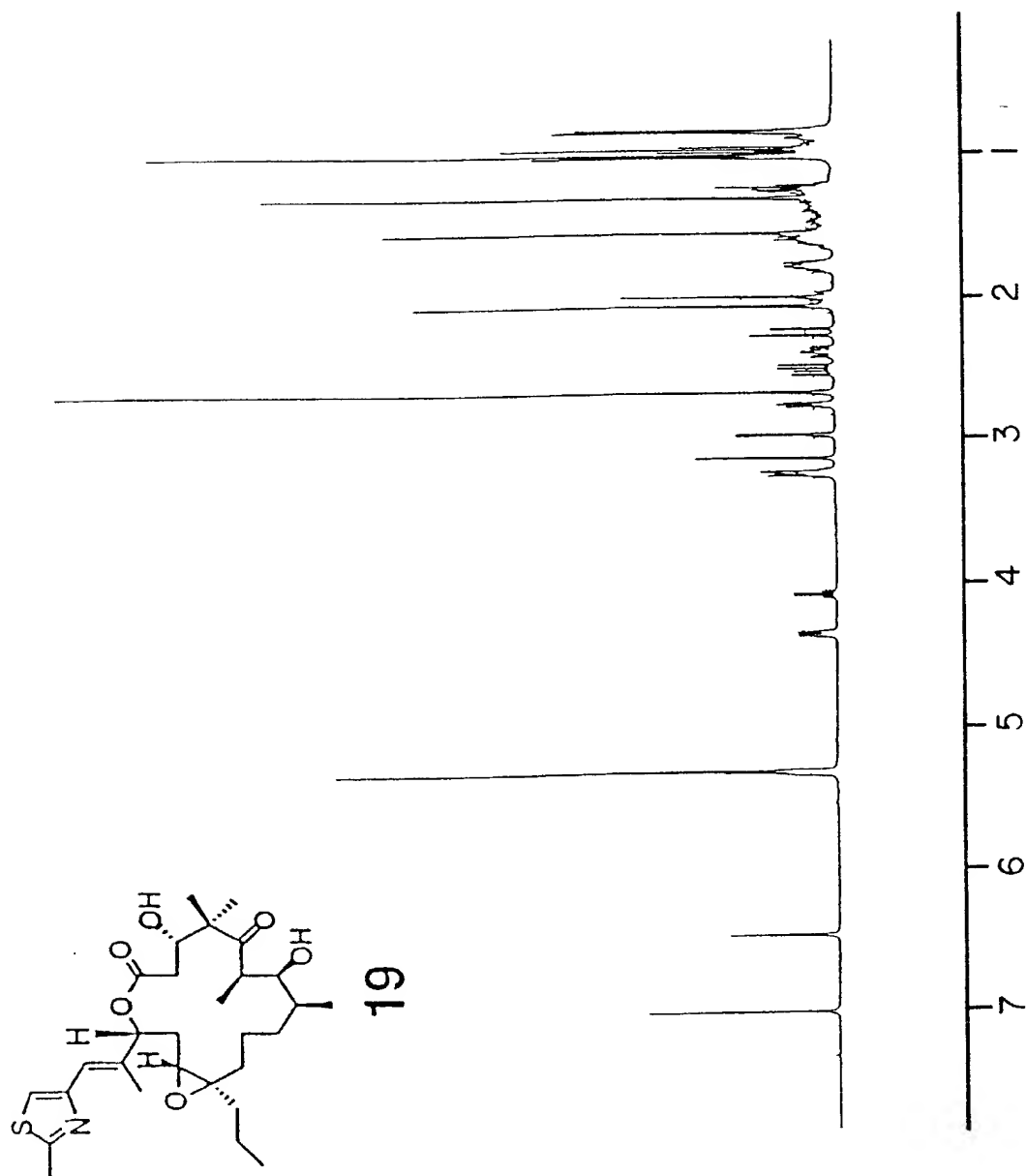
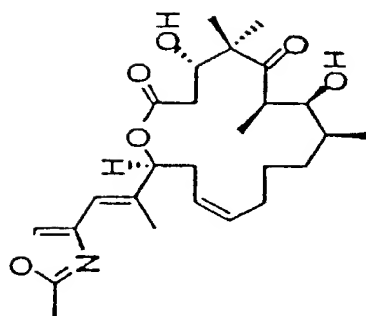


FIG. 32



20

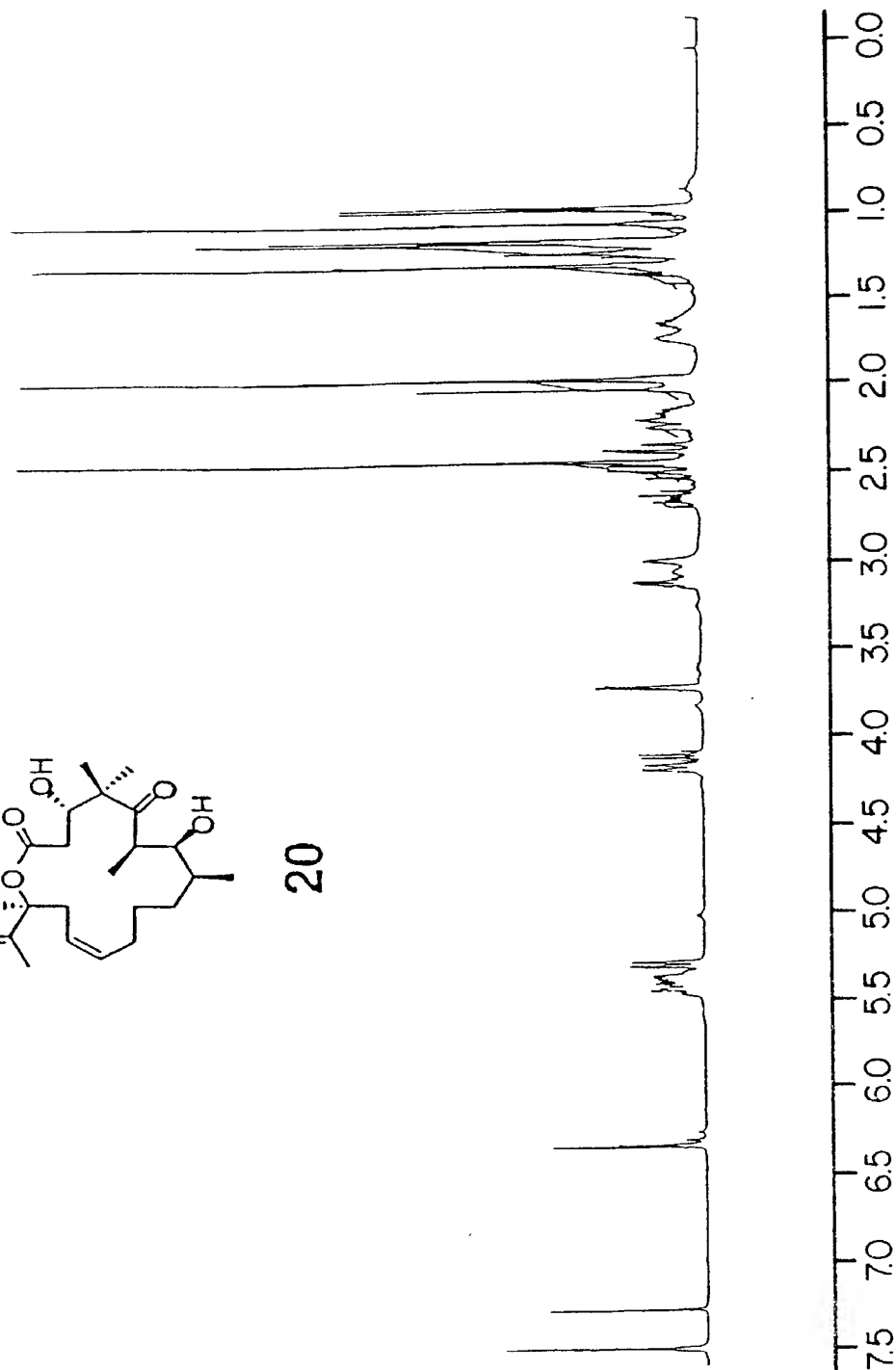
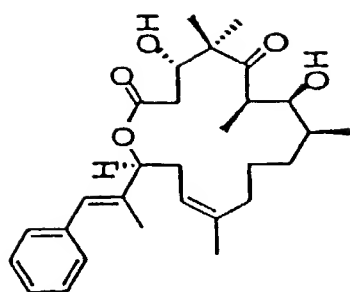
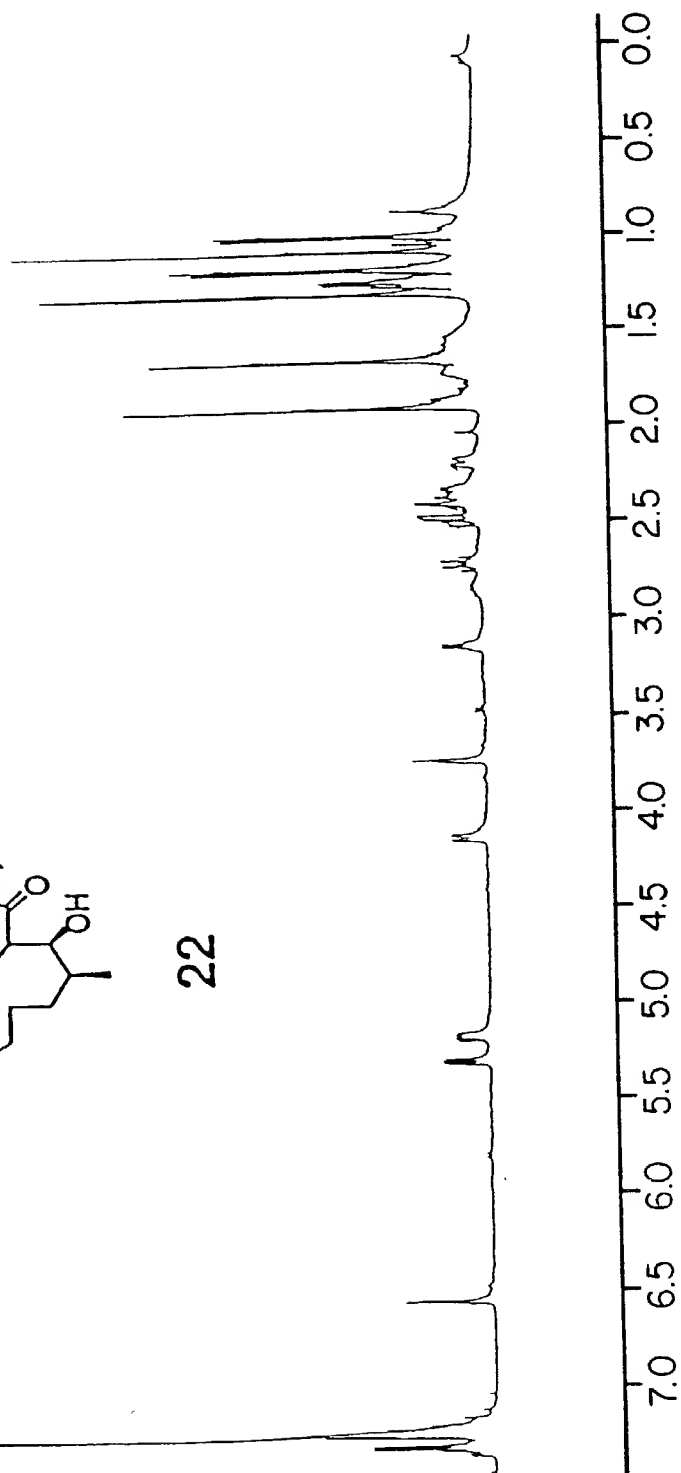


FIG. 33



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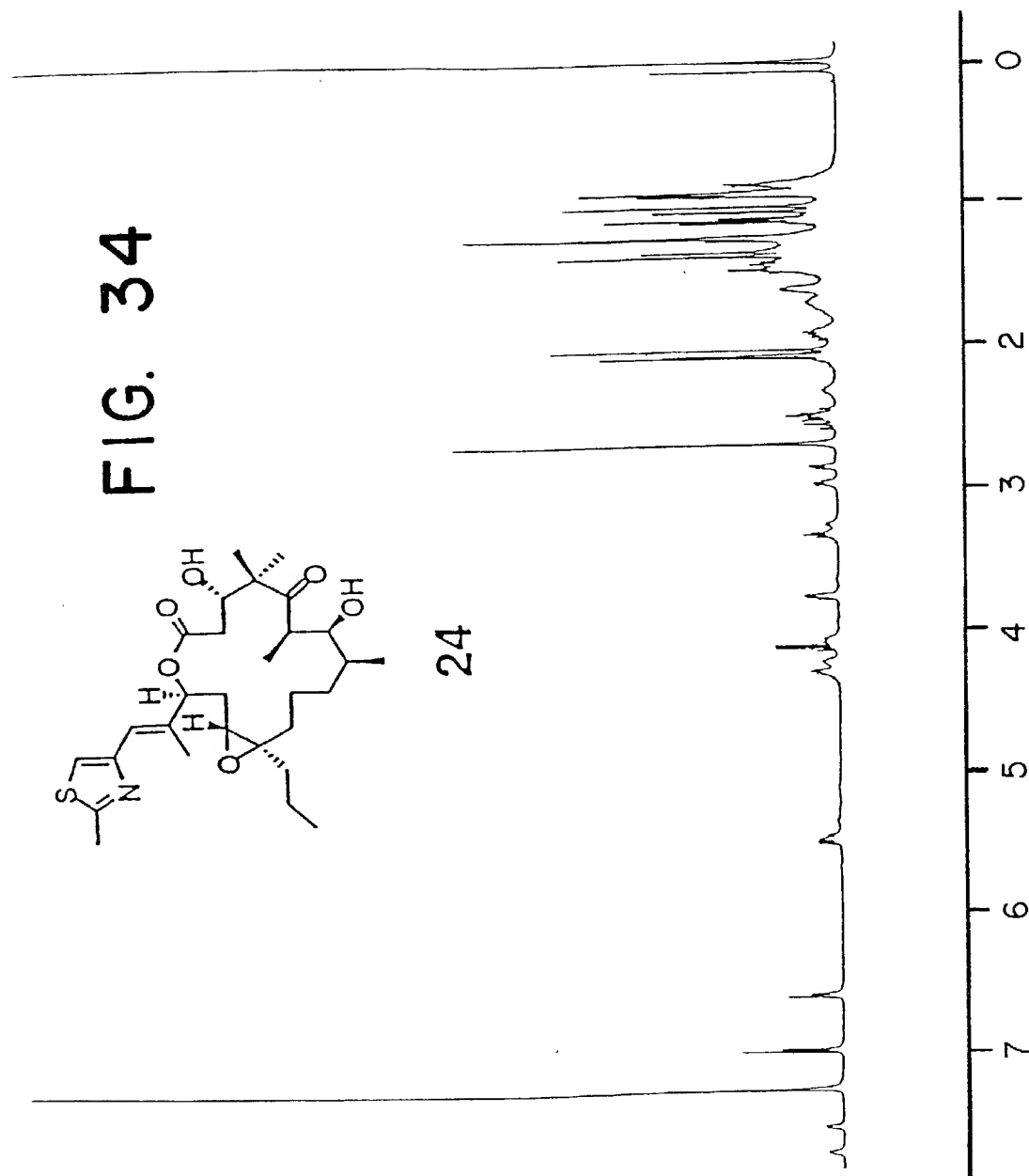
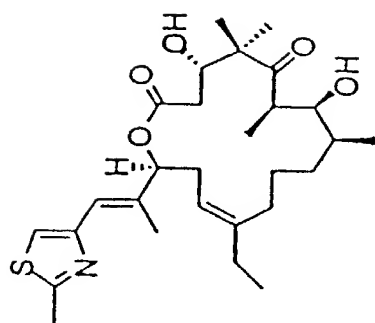
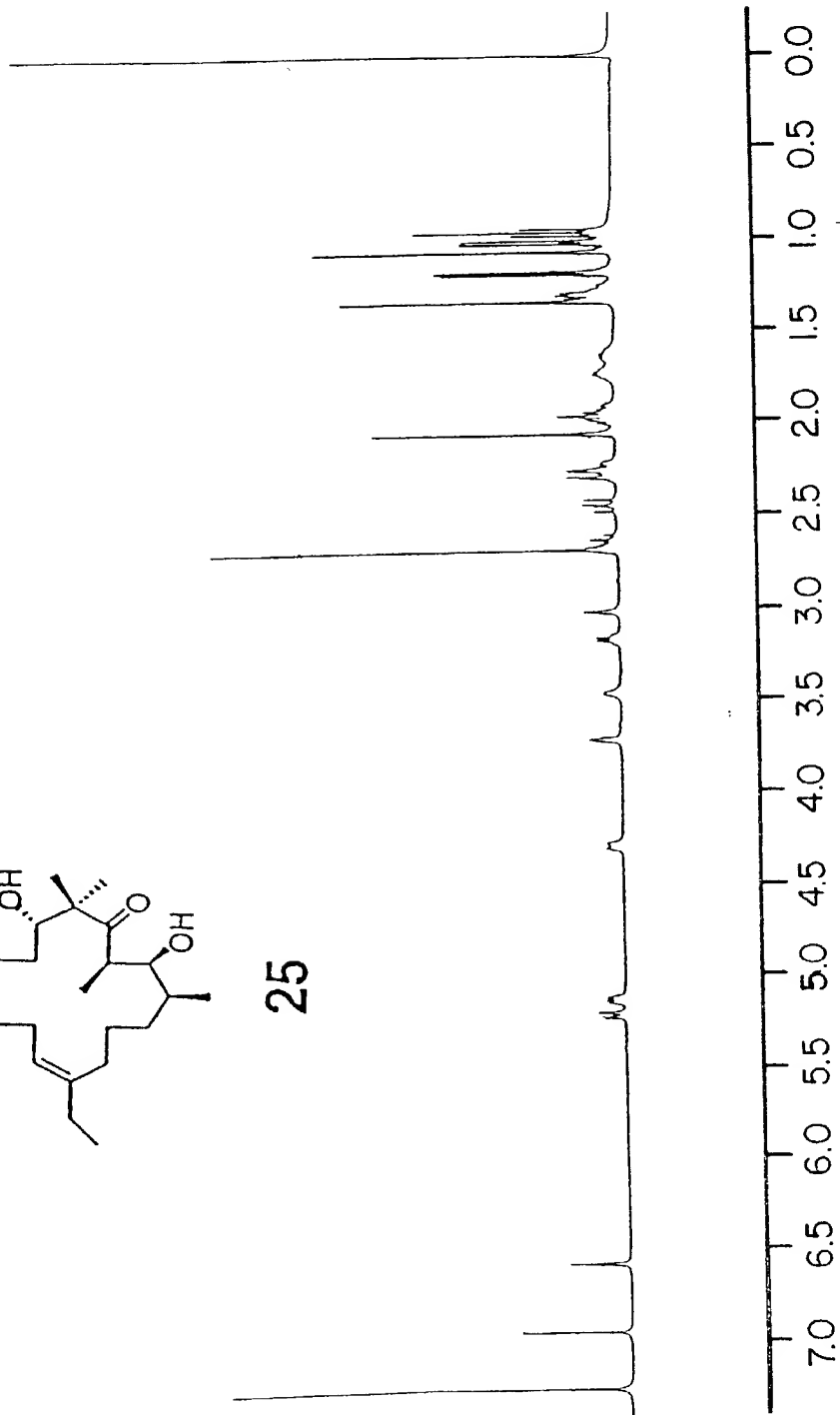




FIG. 35

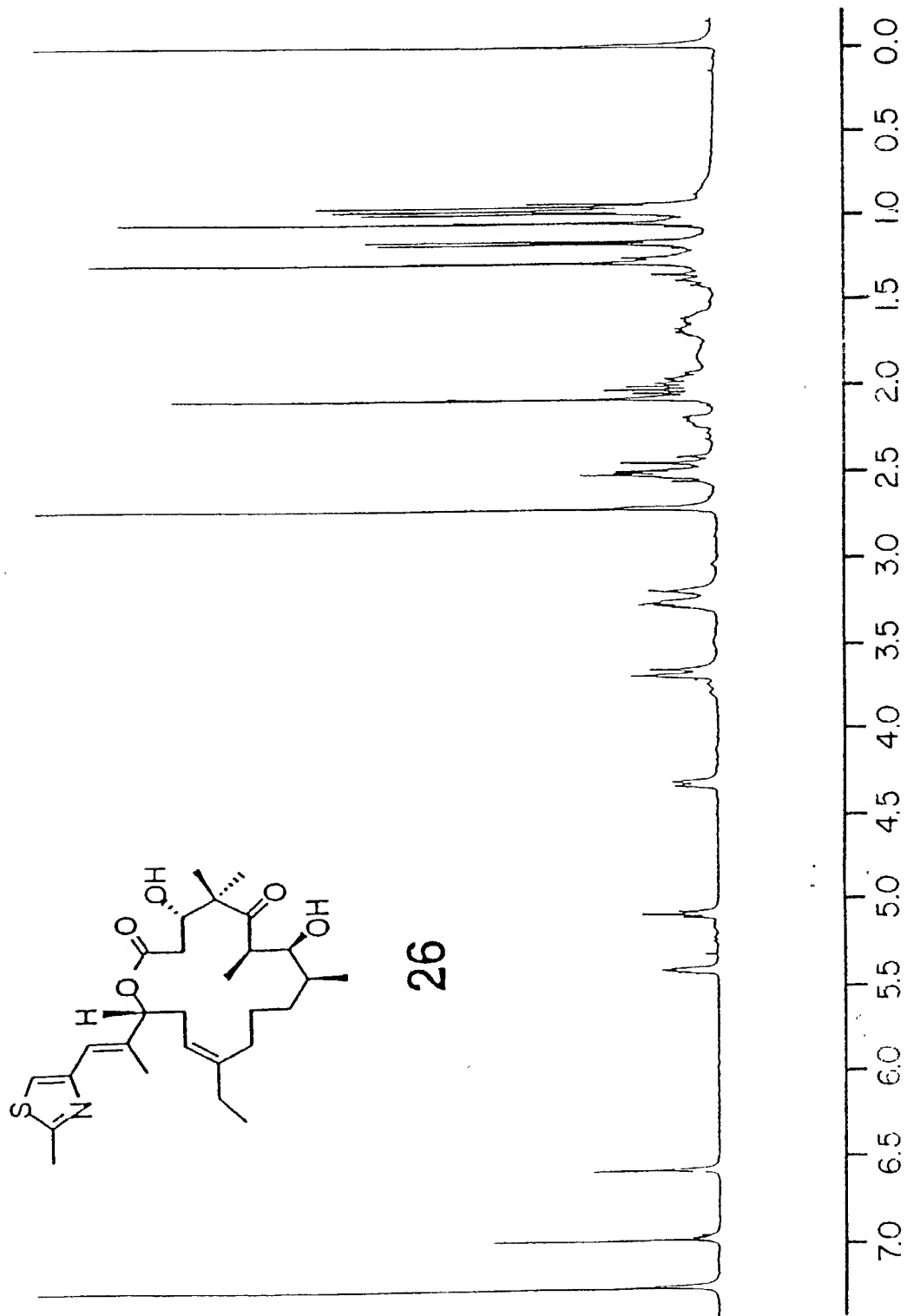


25



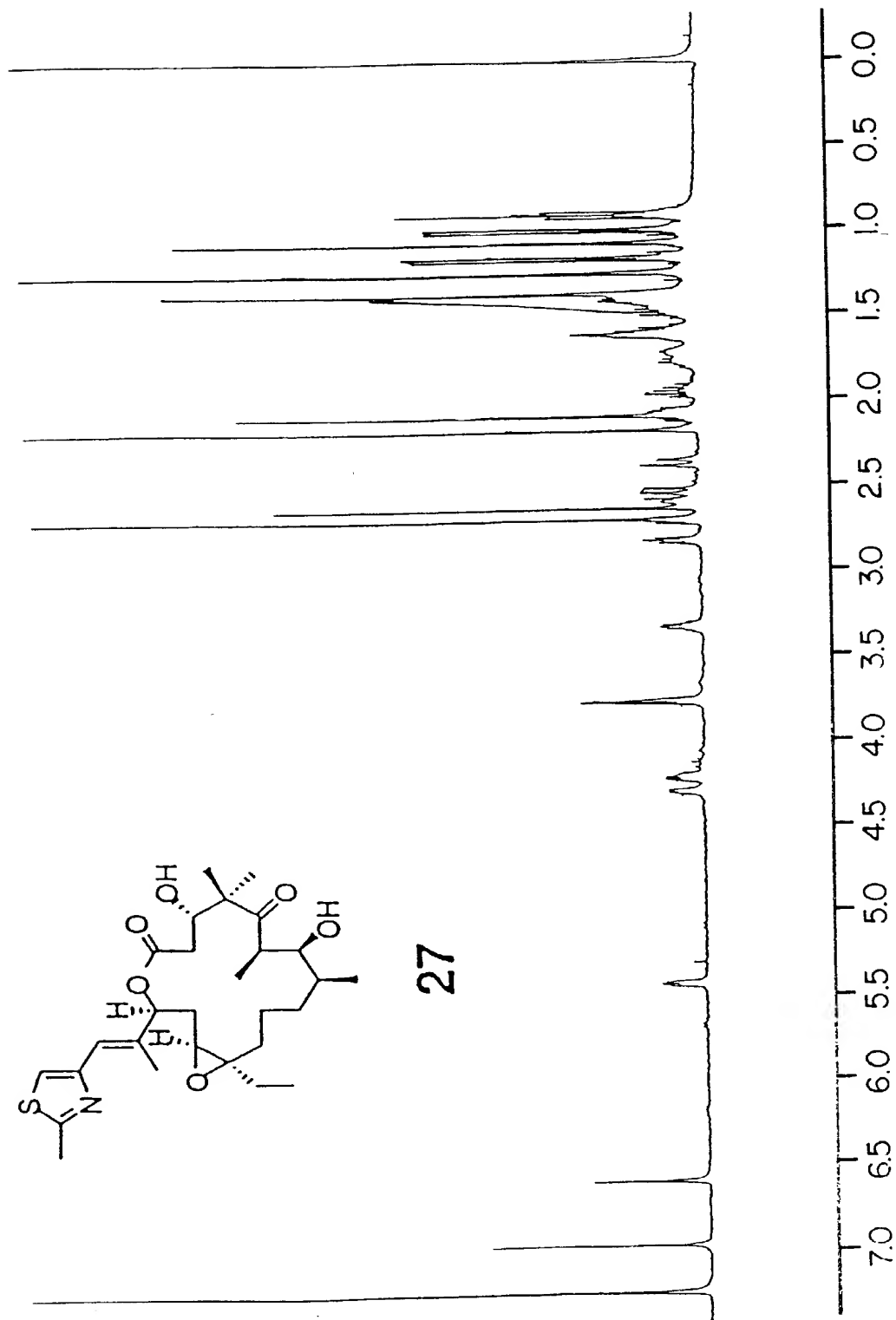
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FIG. 36



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FIG. 37



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FIG. 38

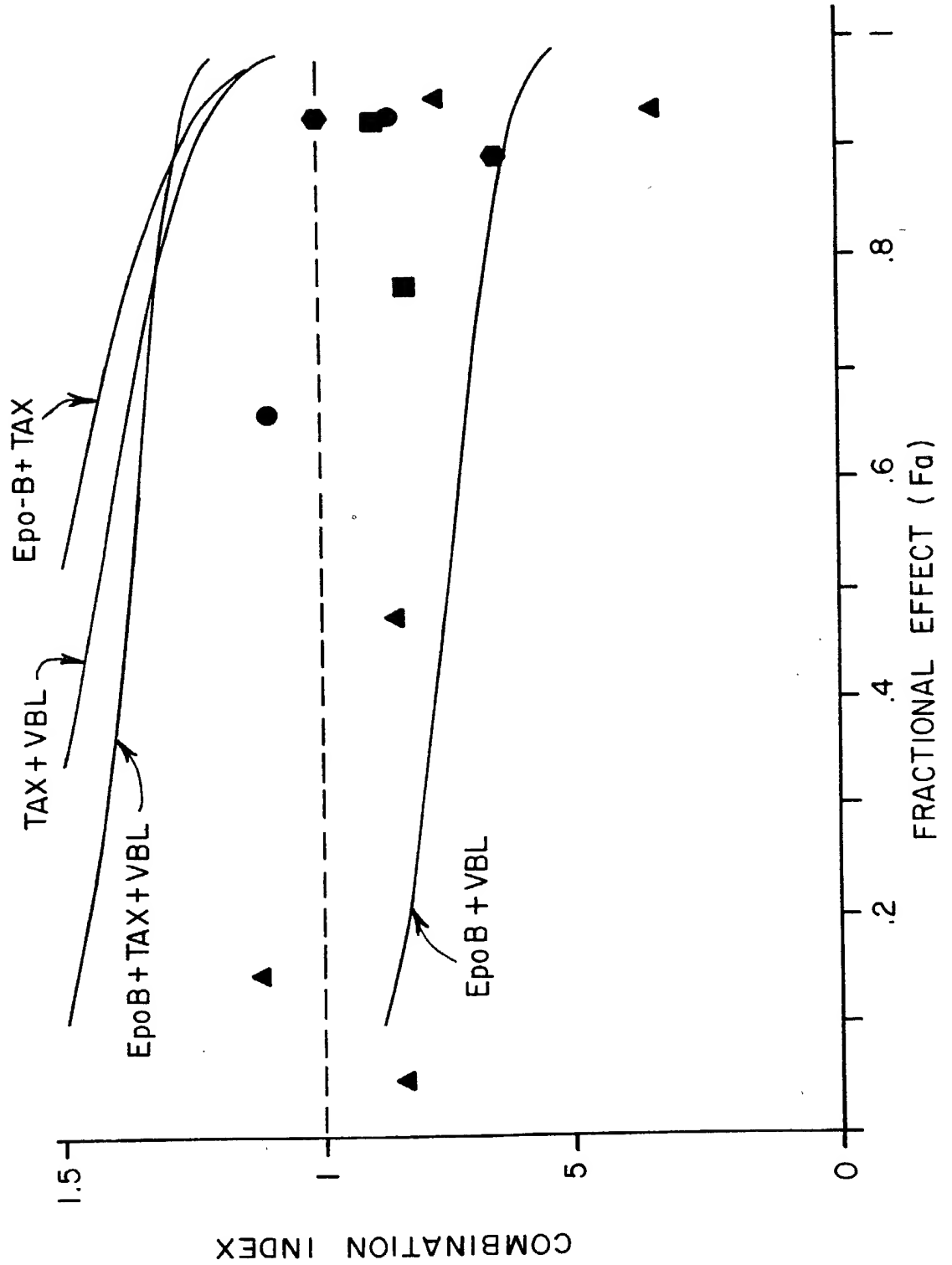
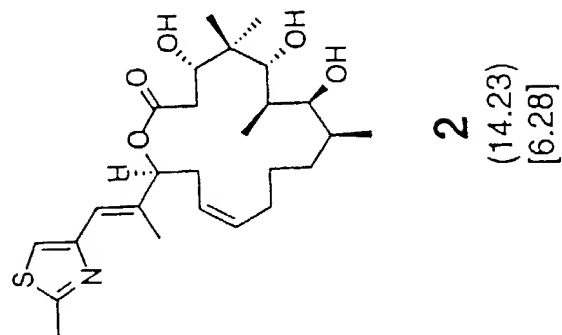
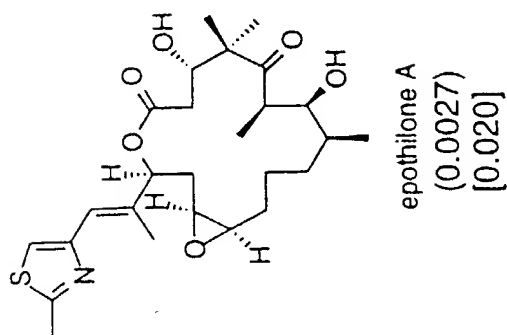
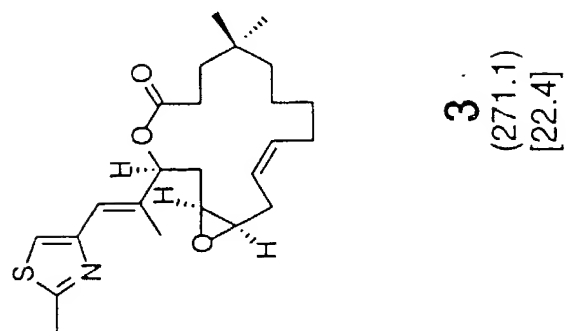
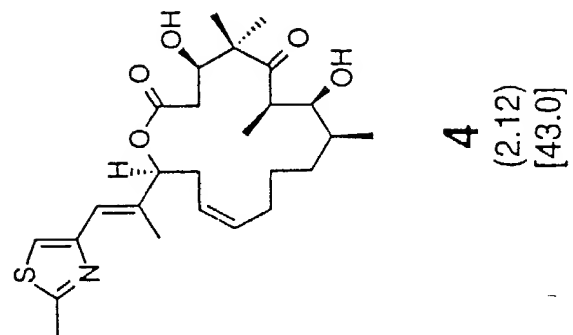
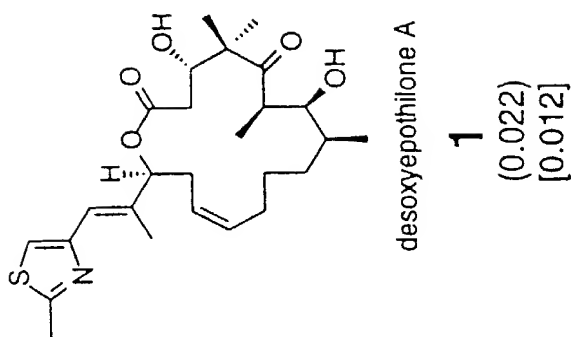
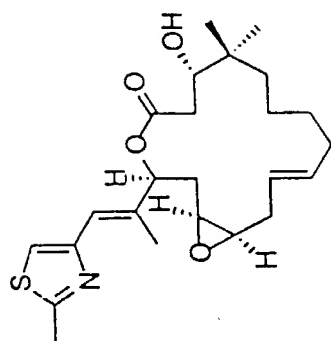


FIG. 39A

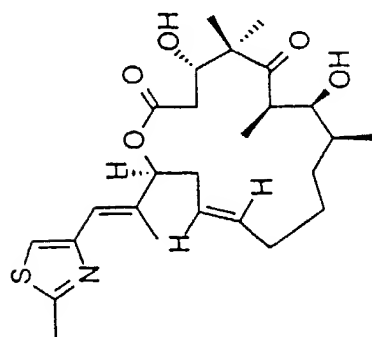


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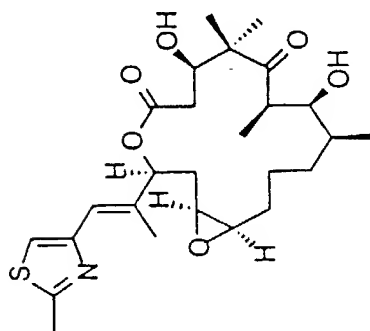
FIG. 39B



7  
(7.36)  
[9.82]

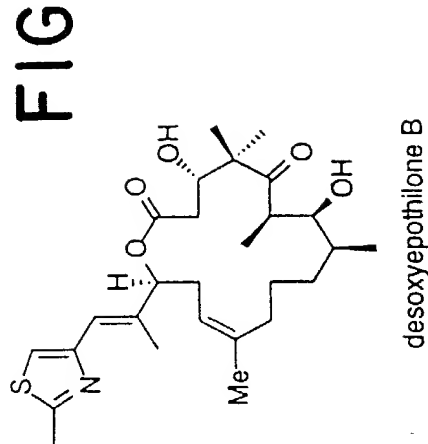


6  
(0.052)  
[0.035]

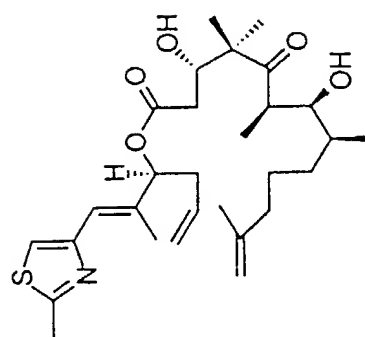


5  
(>20)  
[35.2]

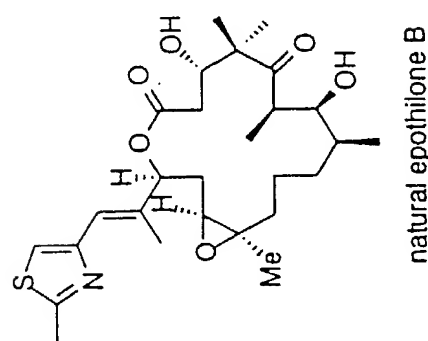
FIG. 40A



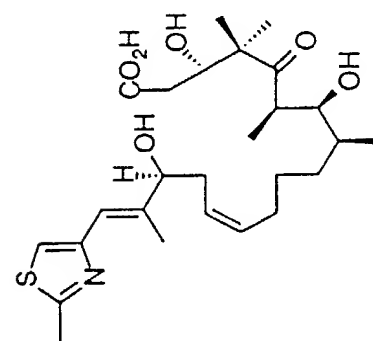
**10**  
(0.0095)  
[0.017]



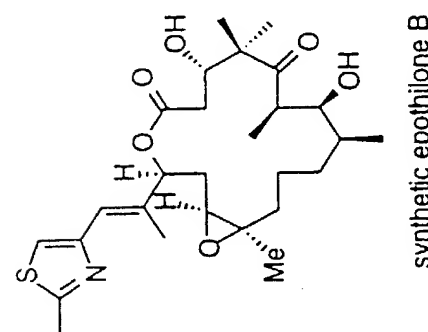
**13**  
(11.53)  
[5.63]



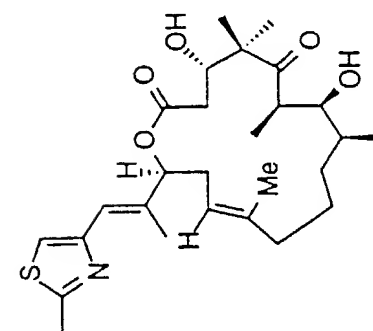
**9**  
(0.00017)  
[0.0012]



**12**  
(0.79)  
[>5]



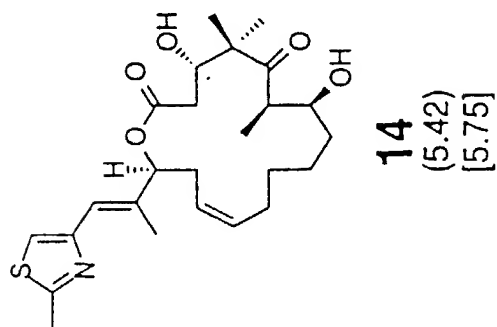
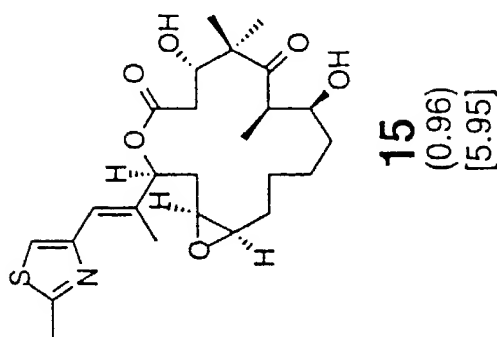
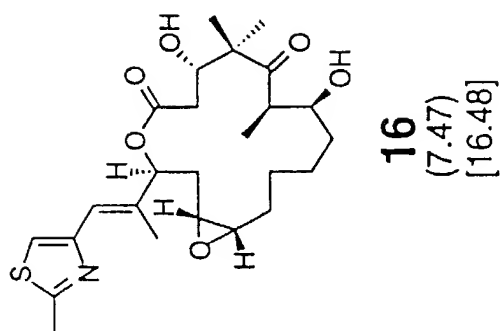
**8**  
(0.00044)  
[0.0026]



**11**  
(0.090)  
[0.262]

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FIG. 40B





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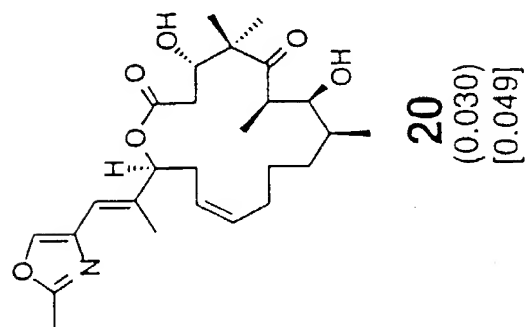
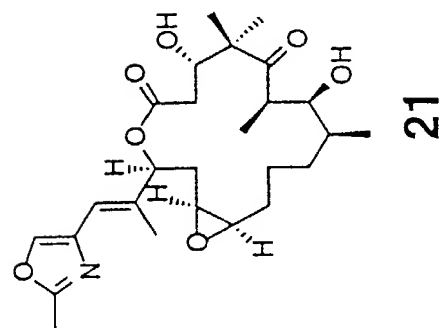
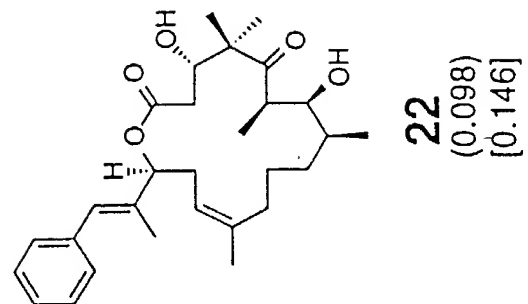
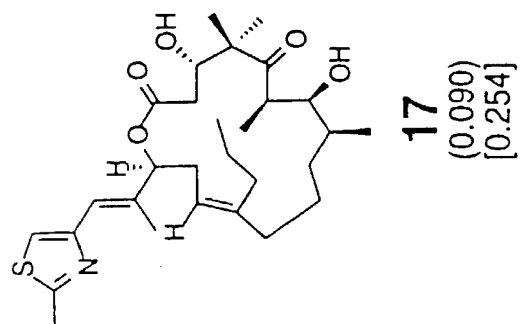
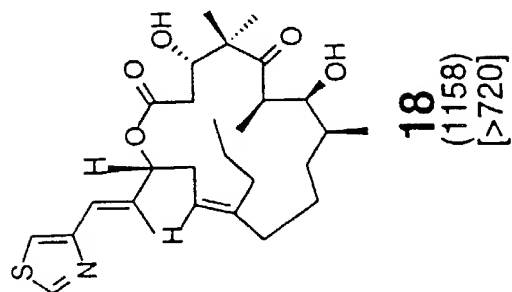
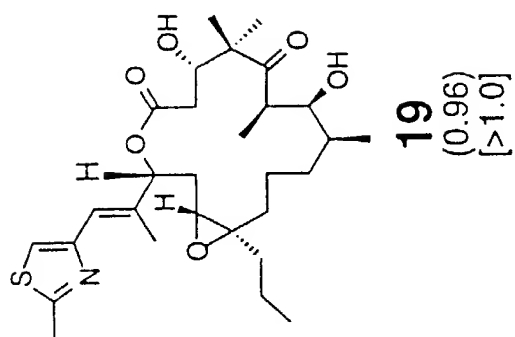
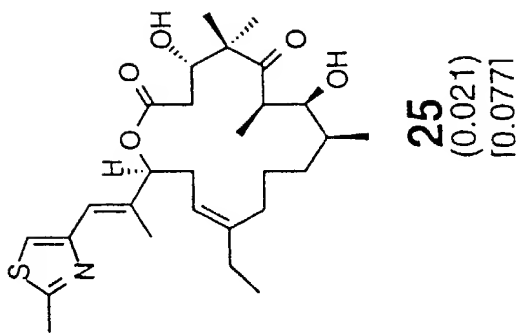
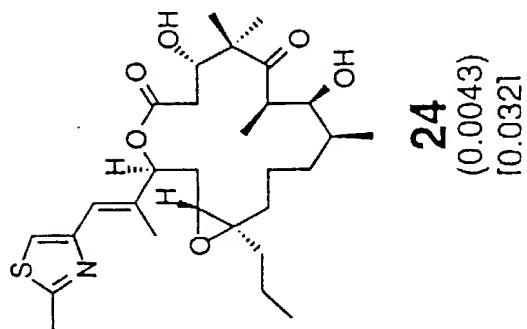
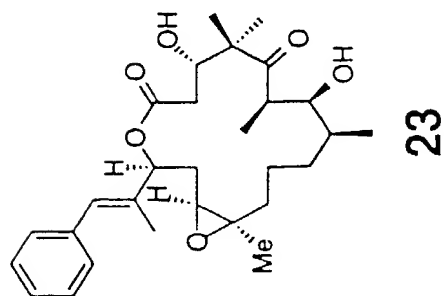


FIG. 41B



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**FIG. 42A**

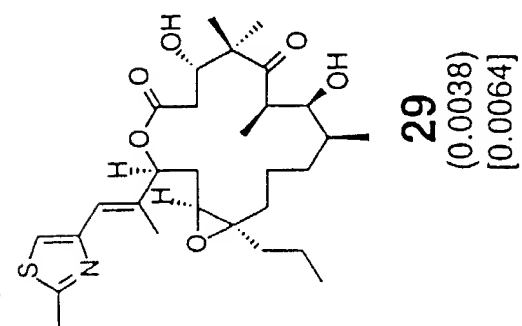
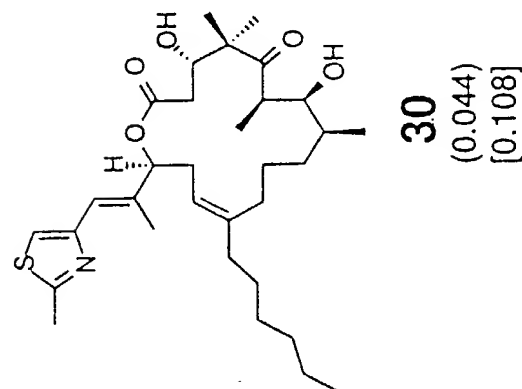
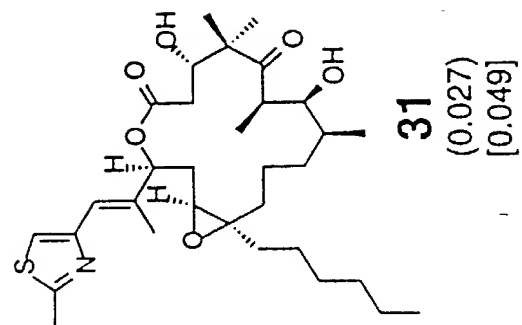
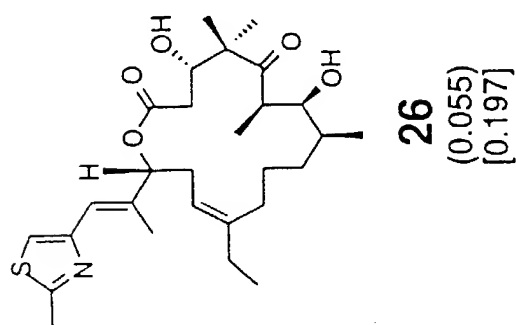
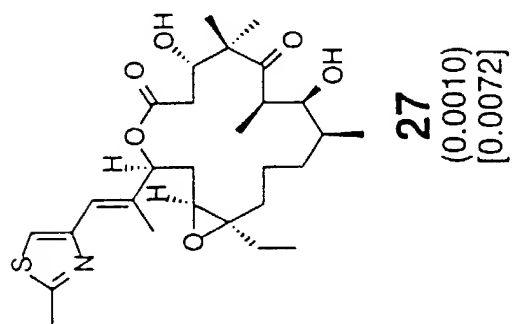
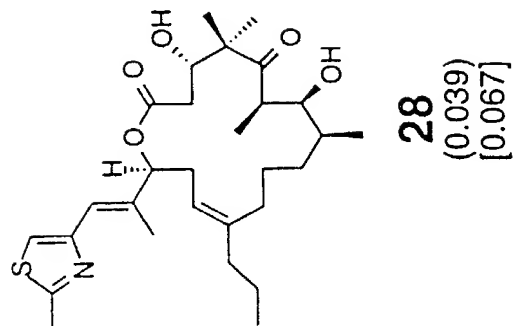
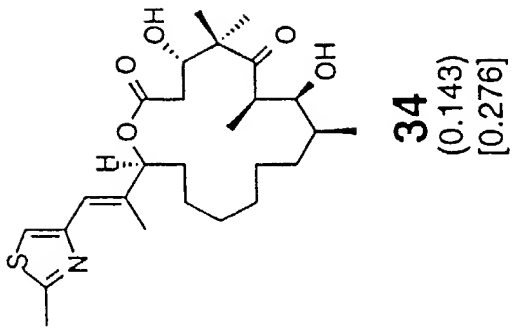
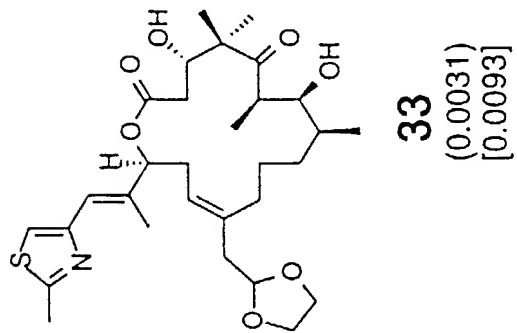
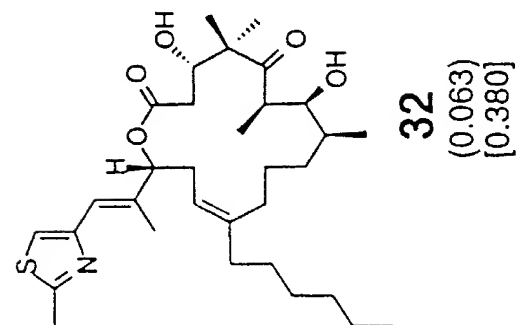


FIG. 42B



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FIG. 42C

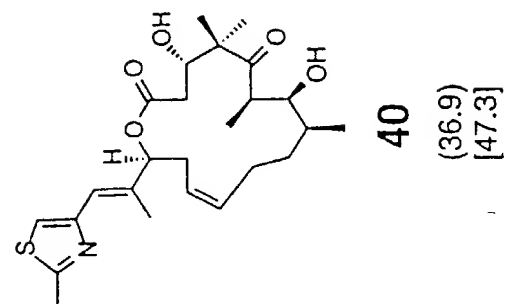
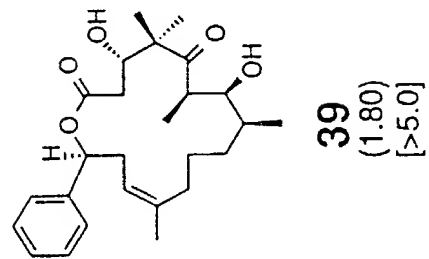
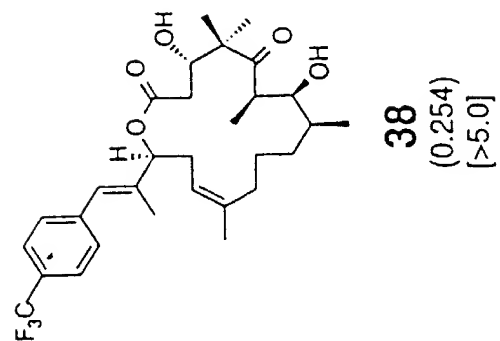
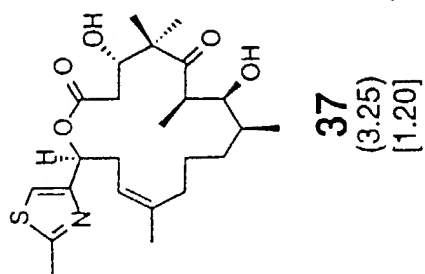
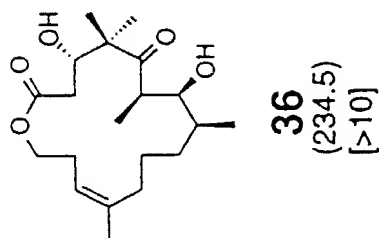
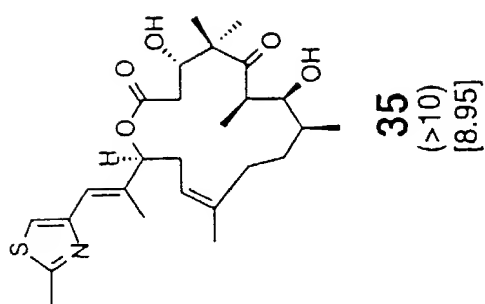
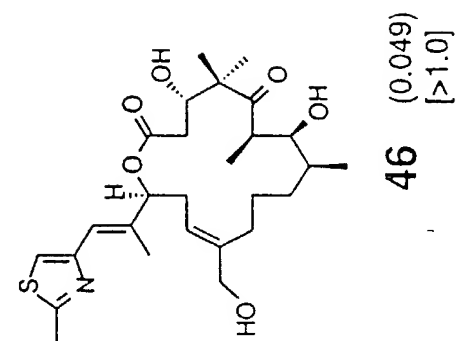
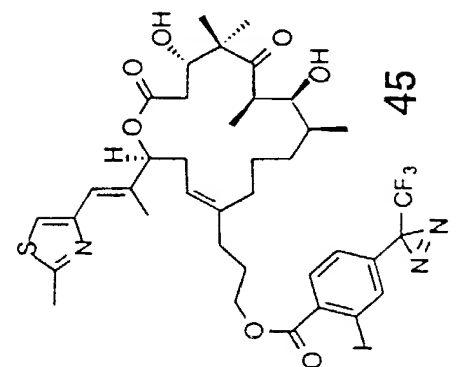
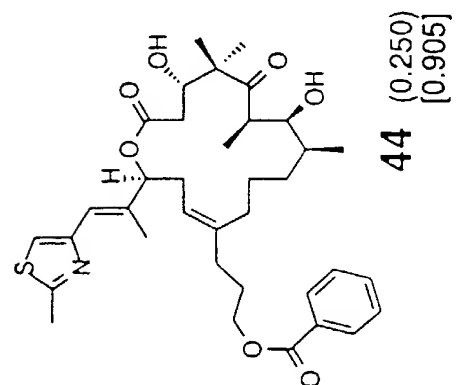
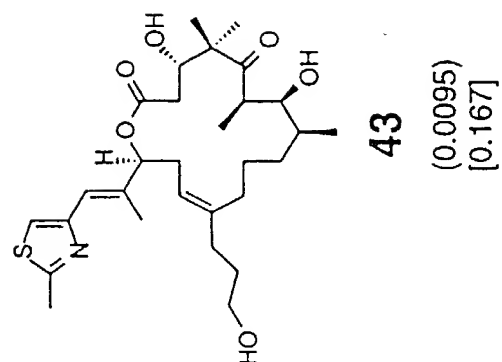
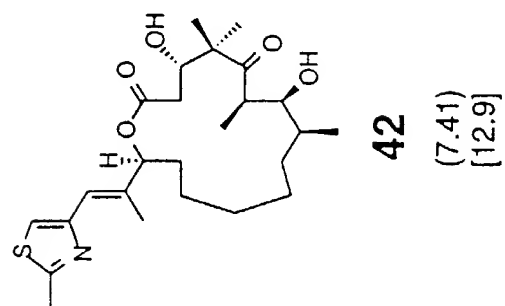
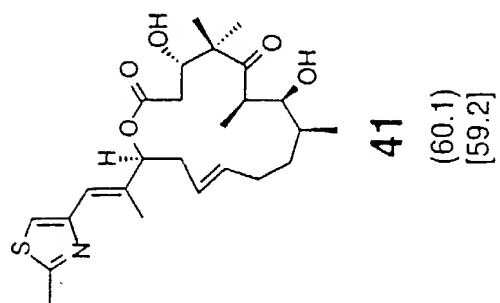
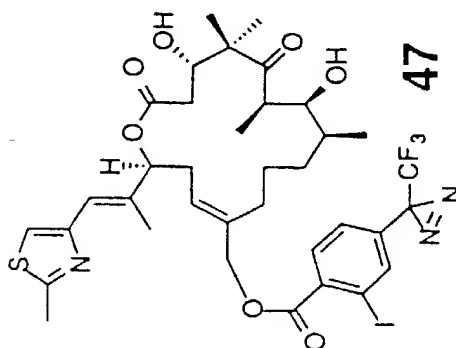
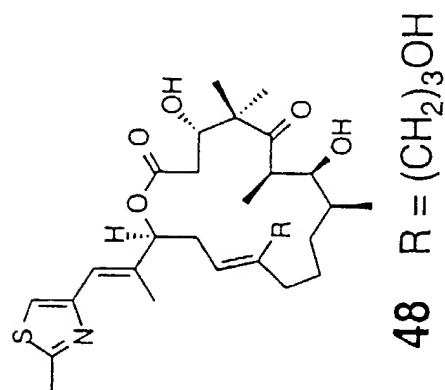
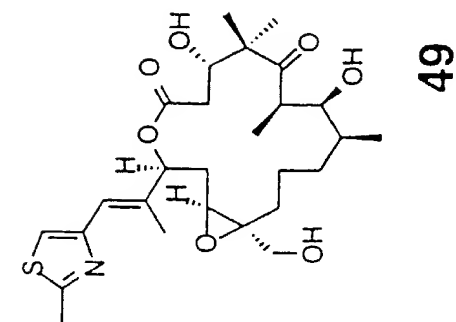


FIG. 42D

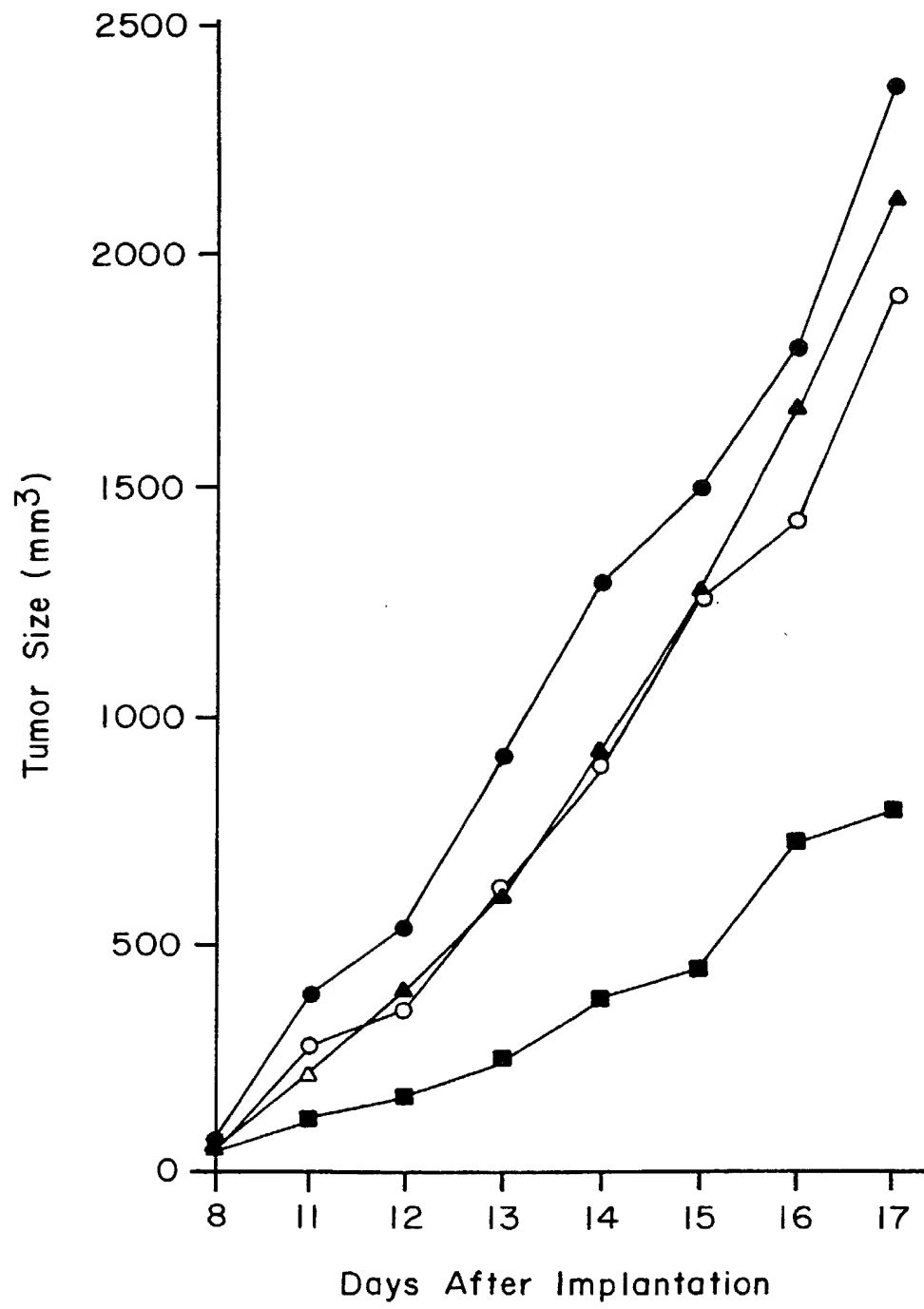


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FIG. 42E



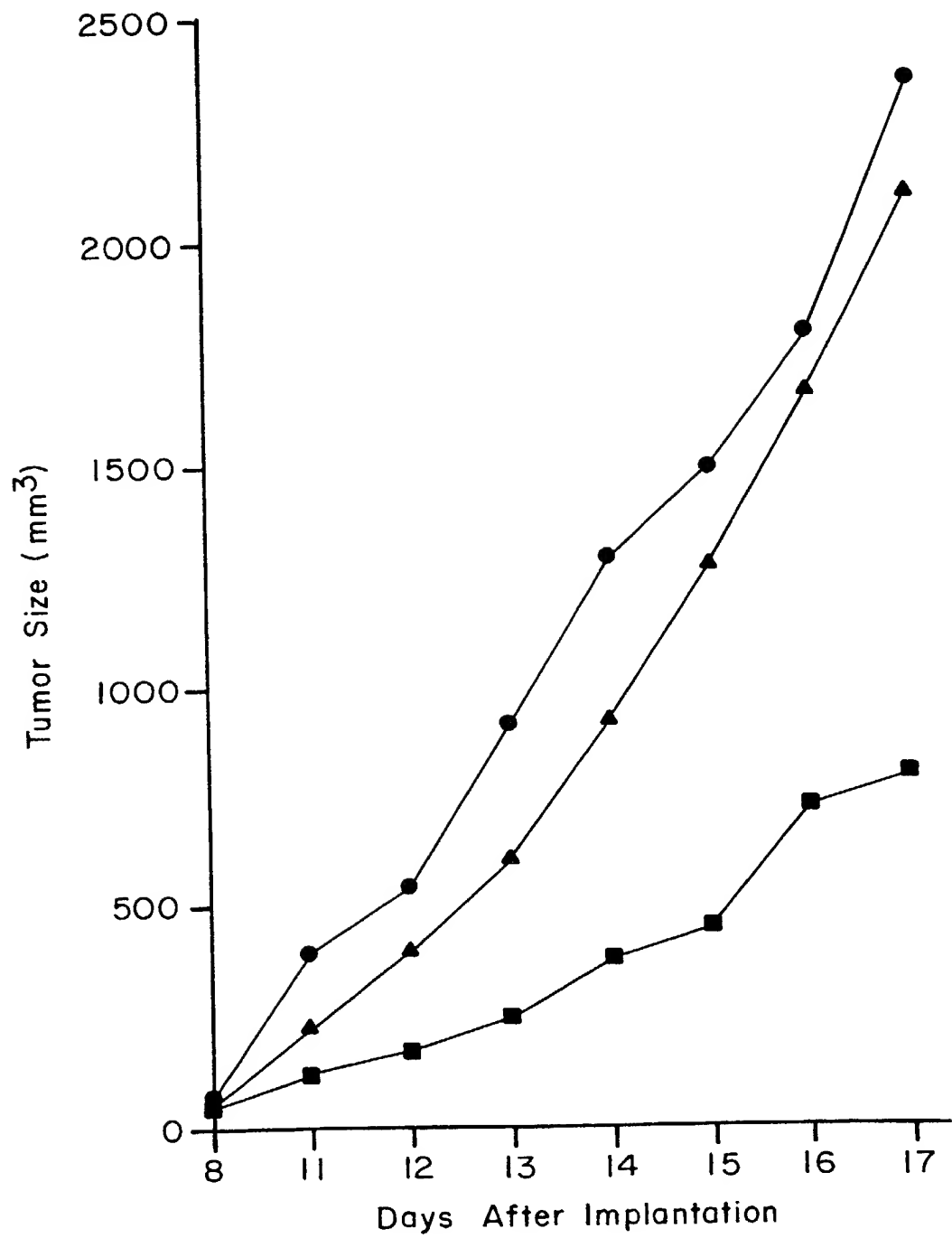
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FIG. 43 A





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FIG. 43 B



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FIG. 44A

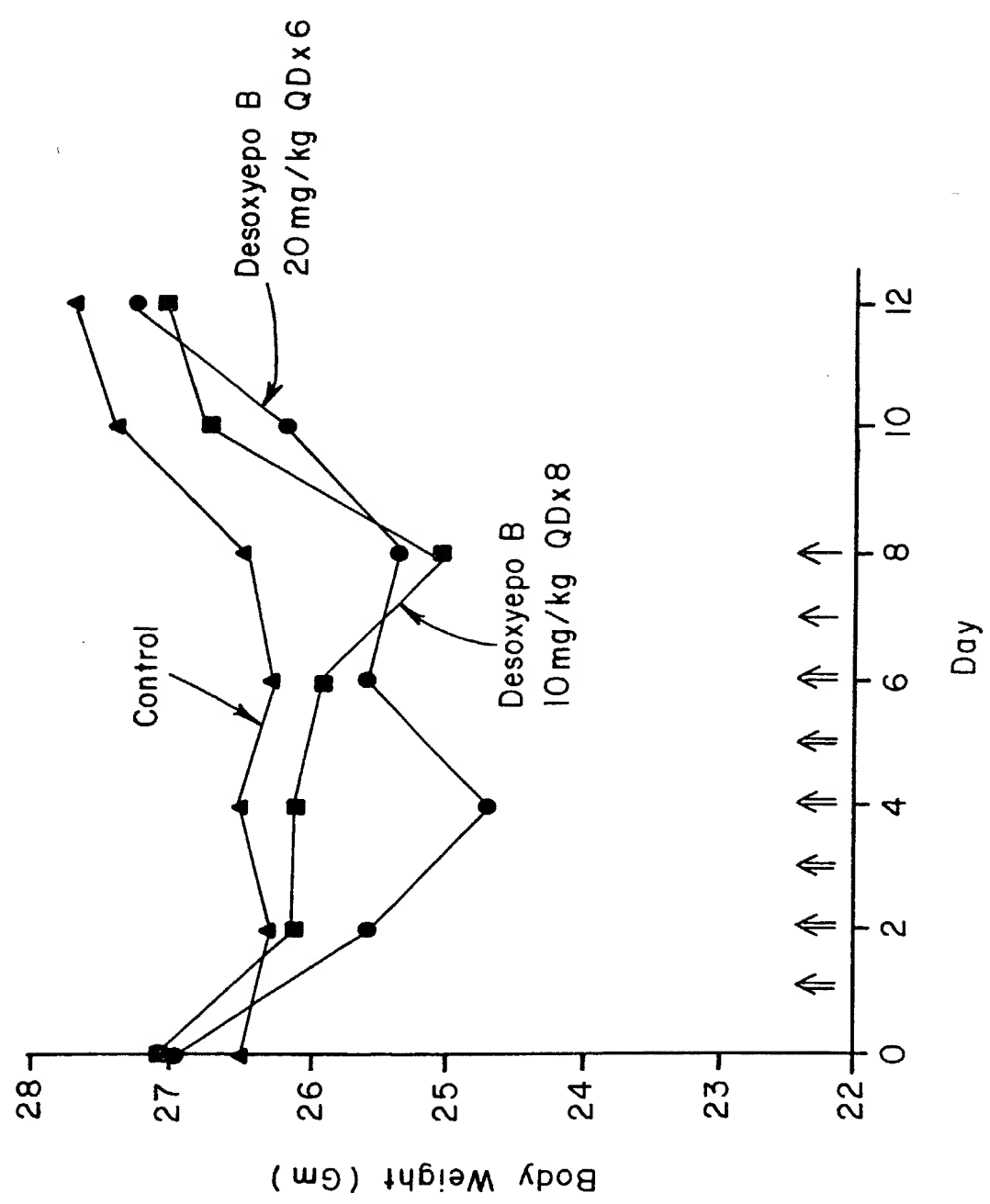
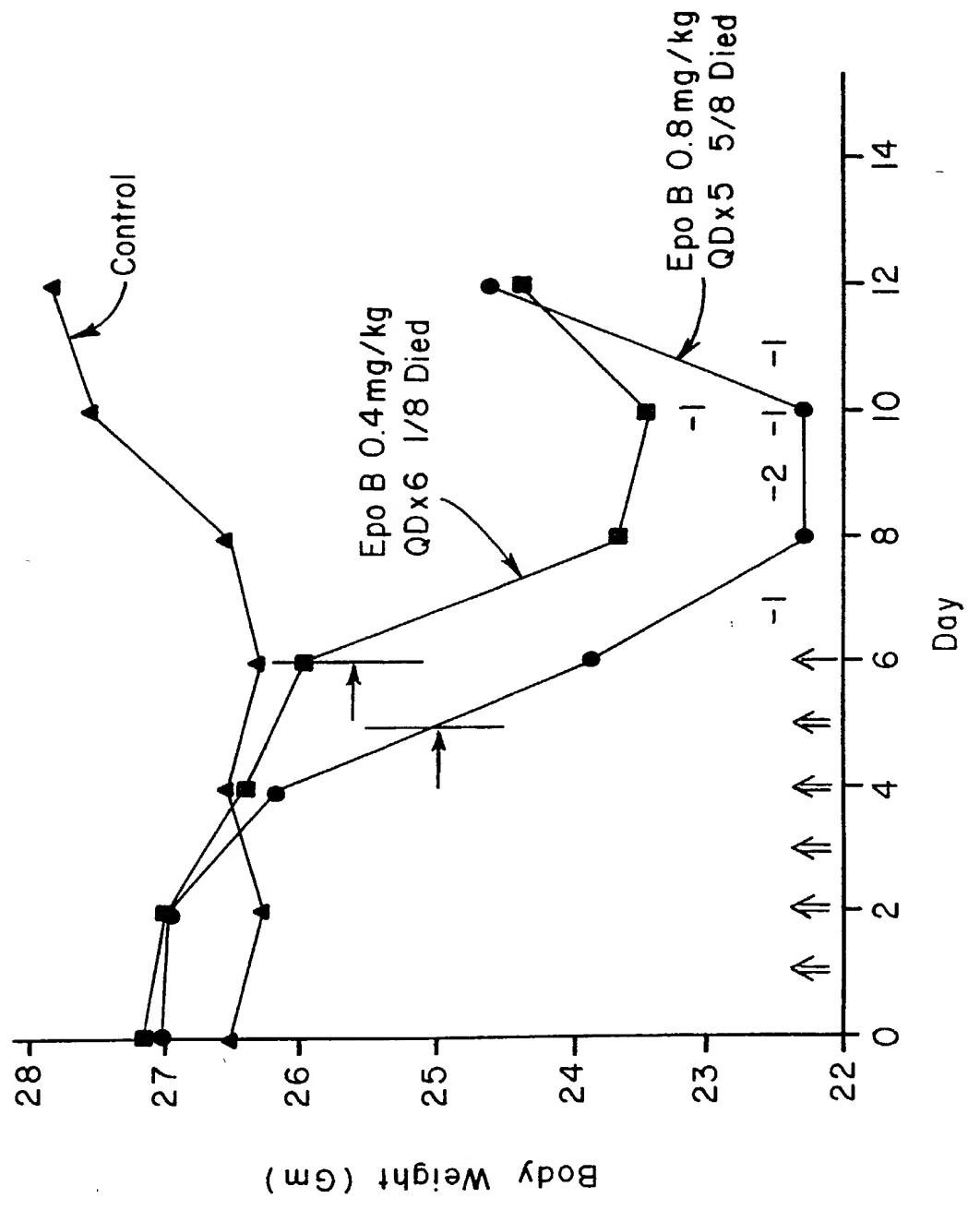
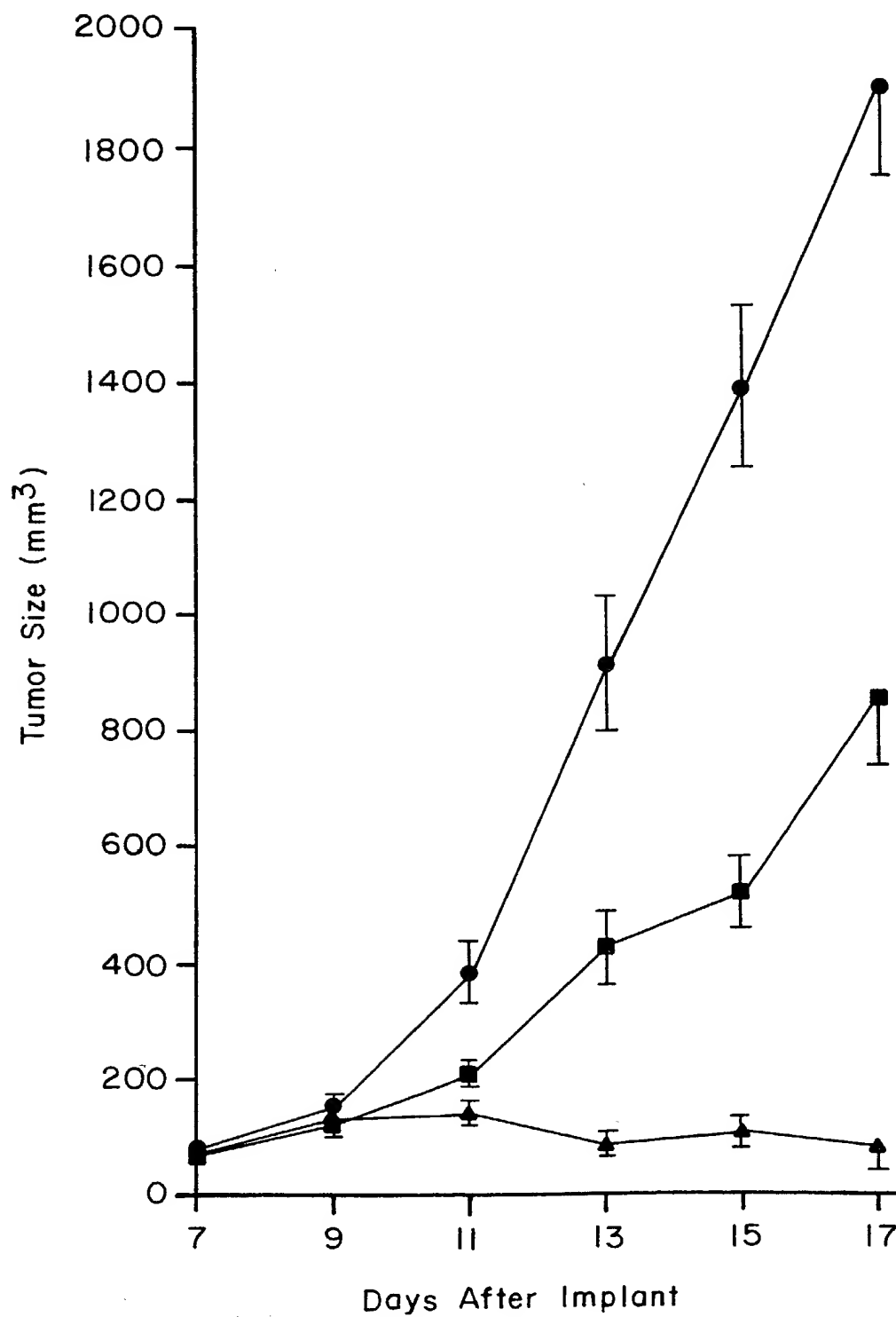


FIG. 44B



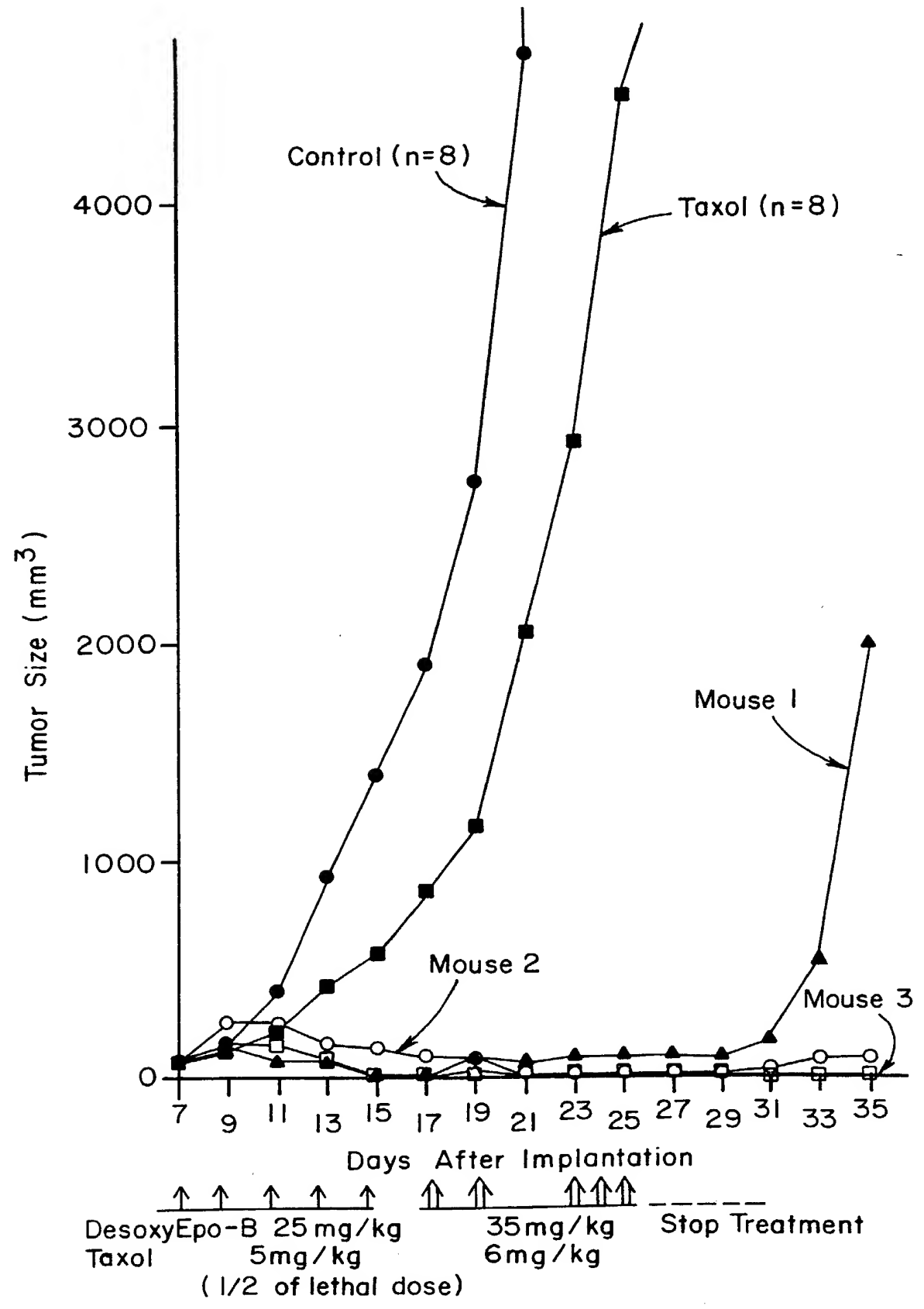
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FIG. 45A



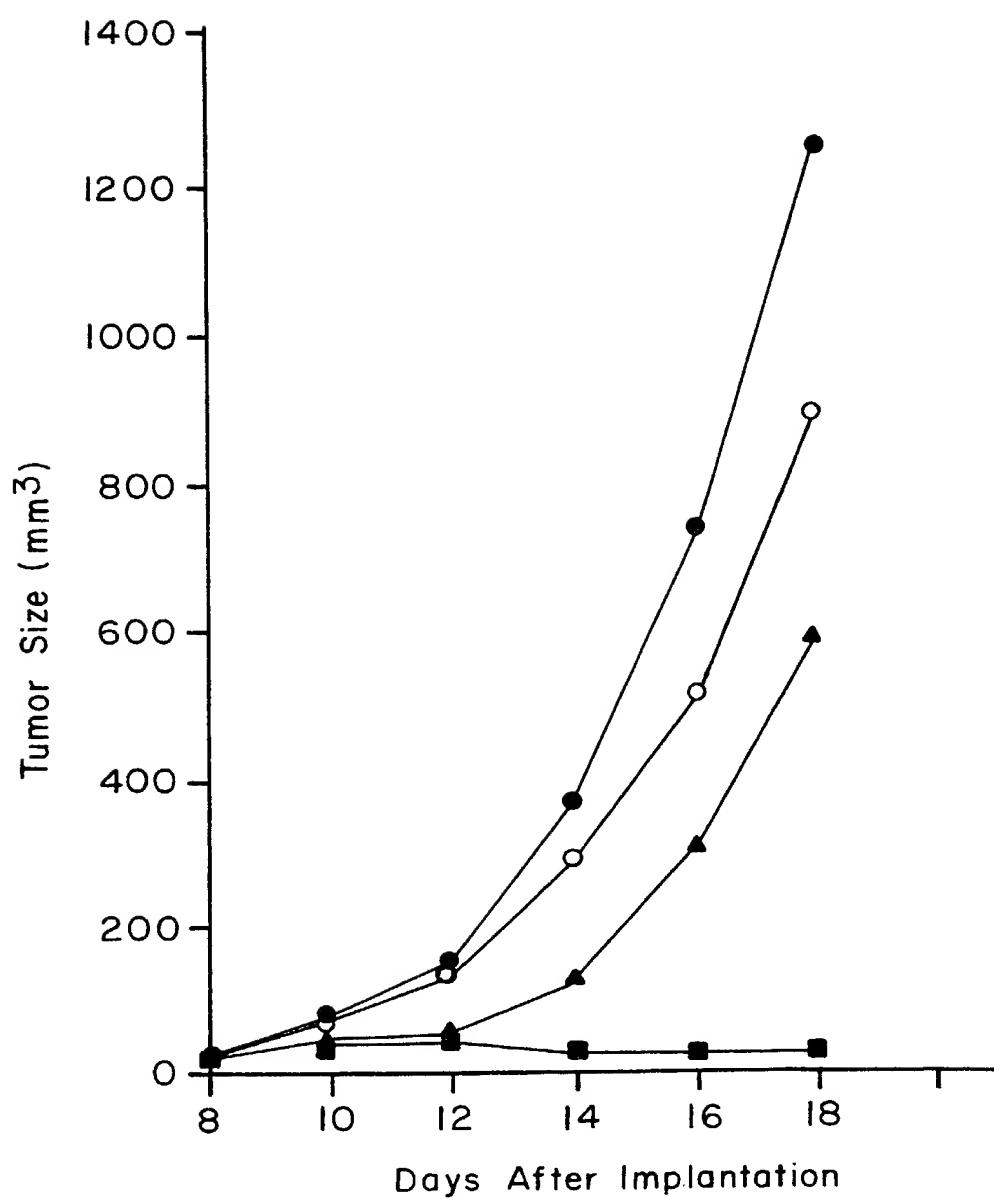
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FIG. 45 B



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FIG. 46



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FIG. 47

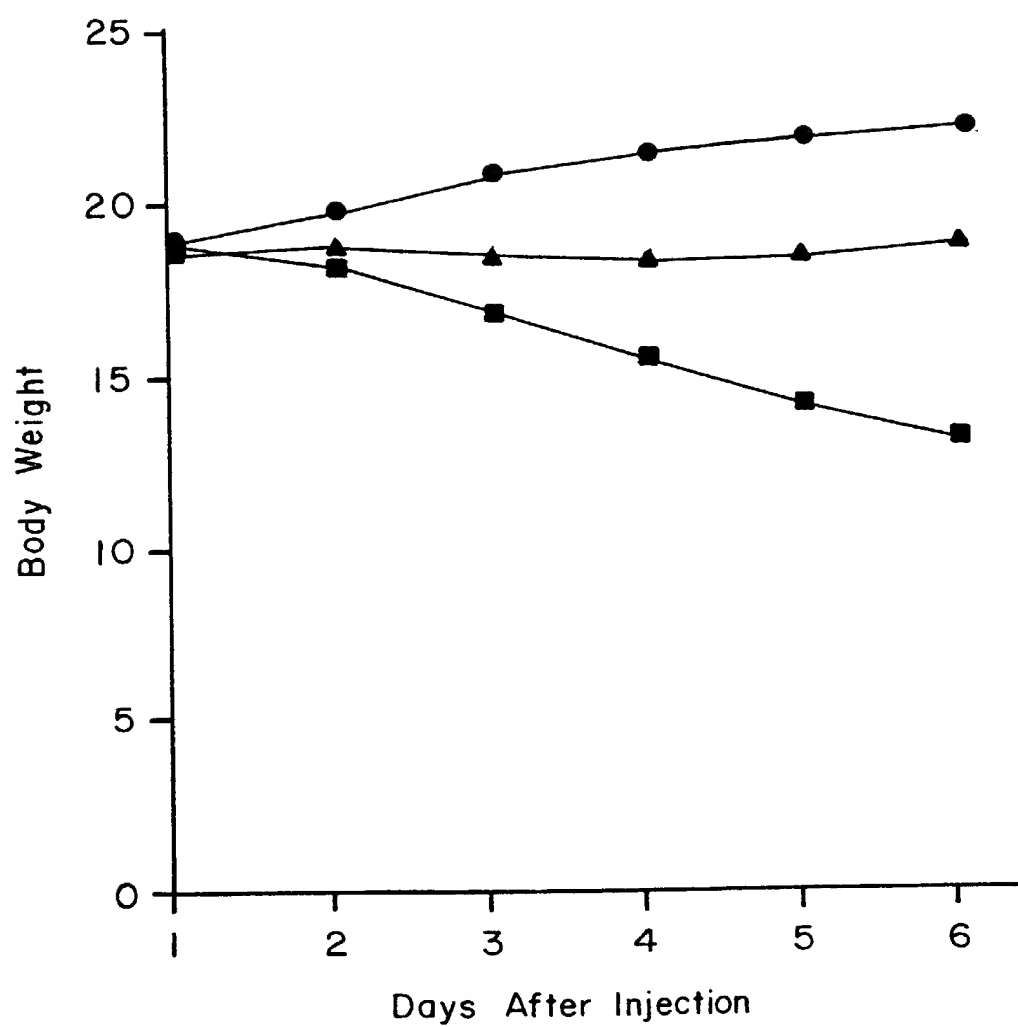
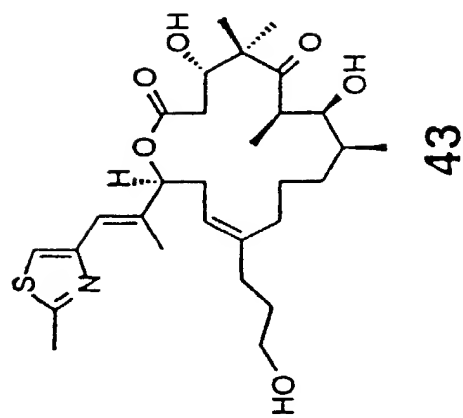


FIG. 48



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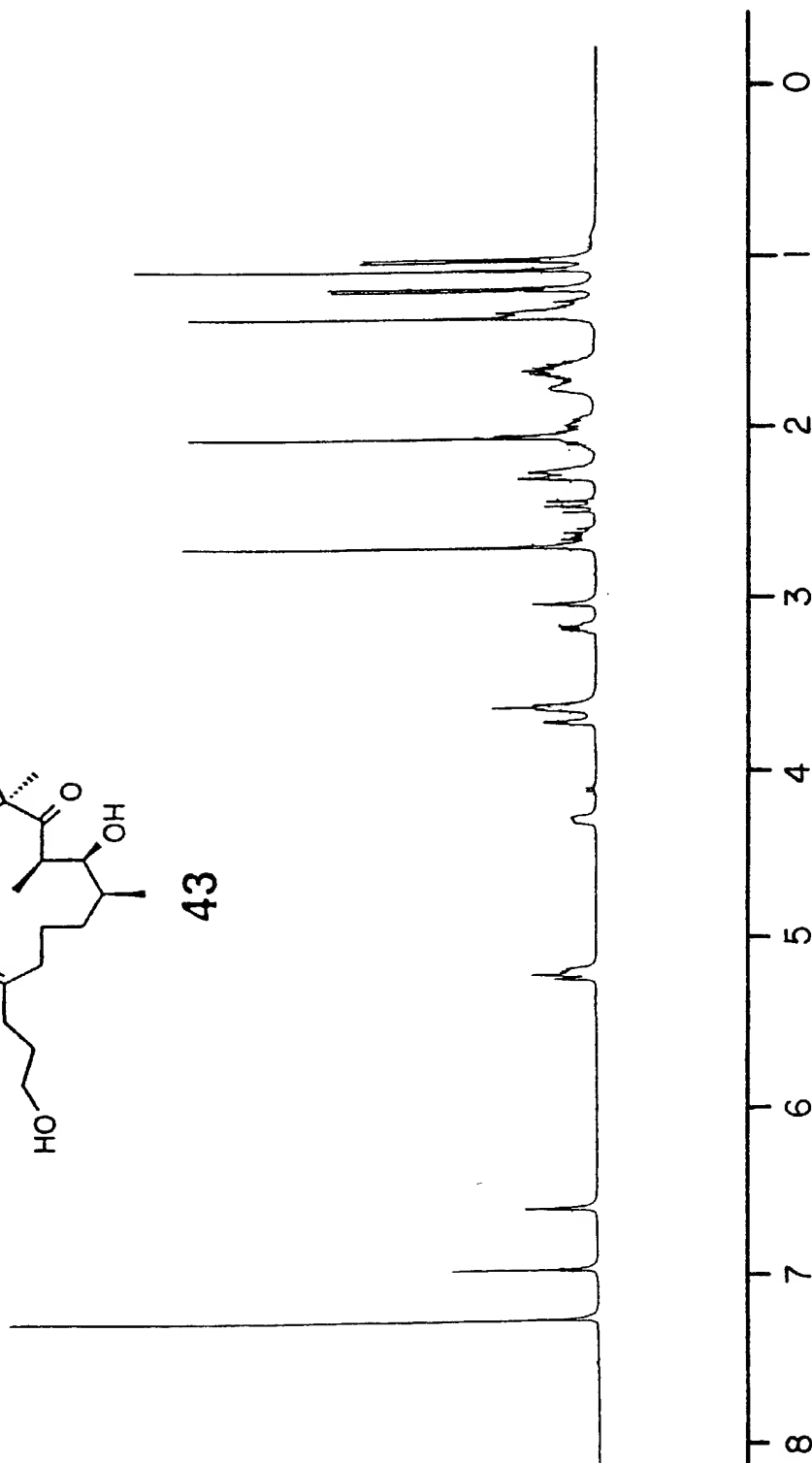
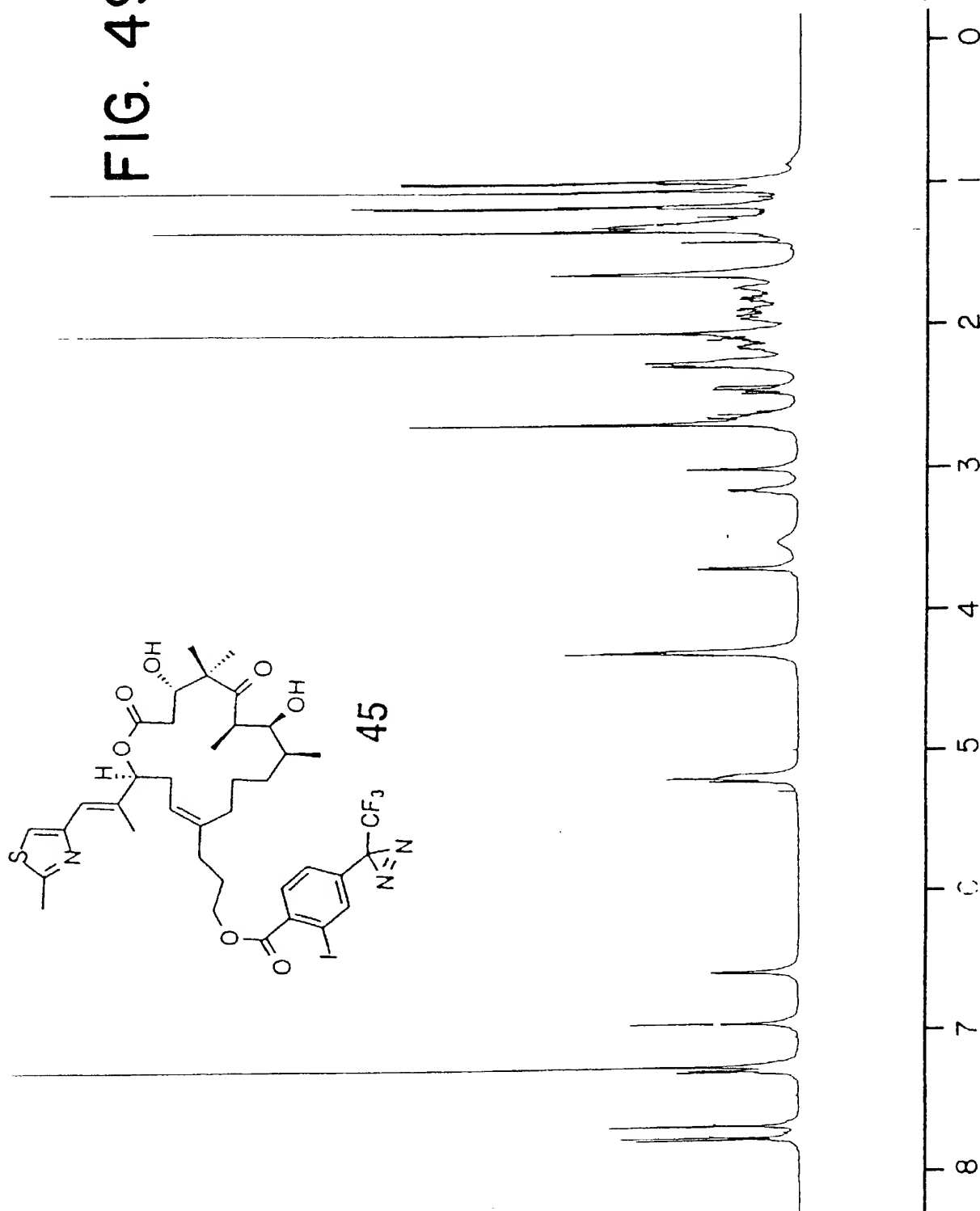
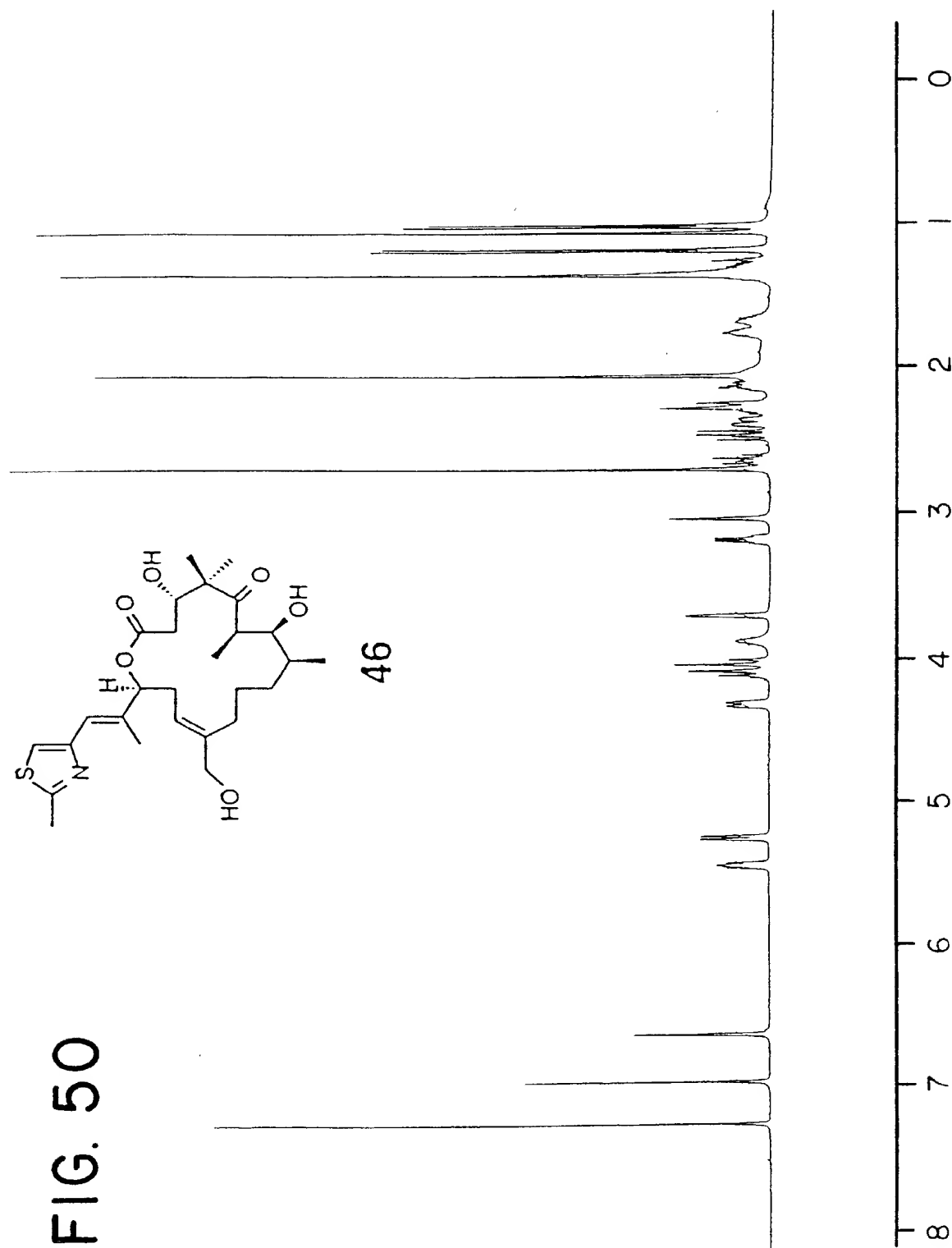




FIG. 49



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FILED

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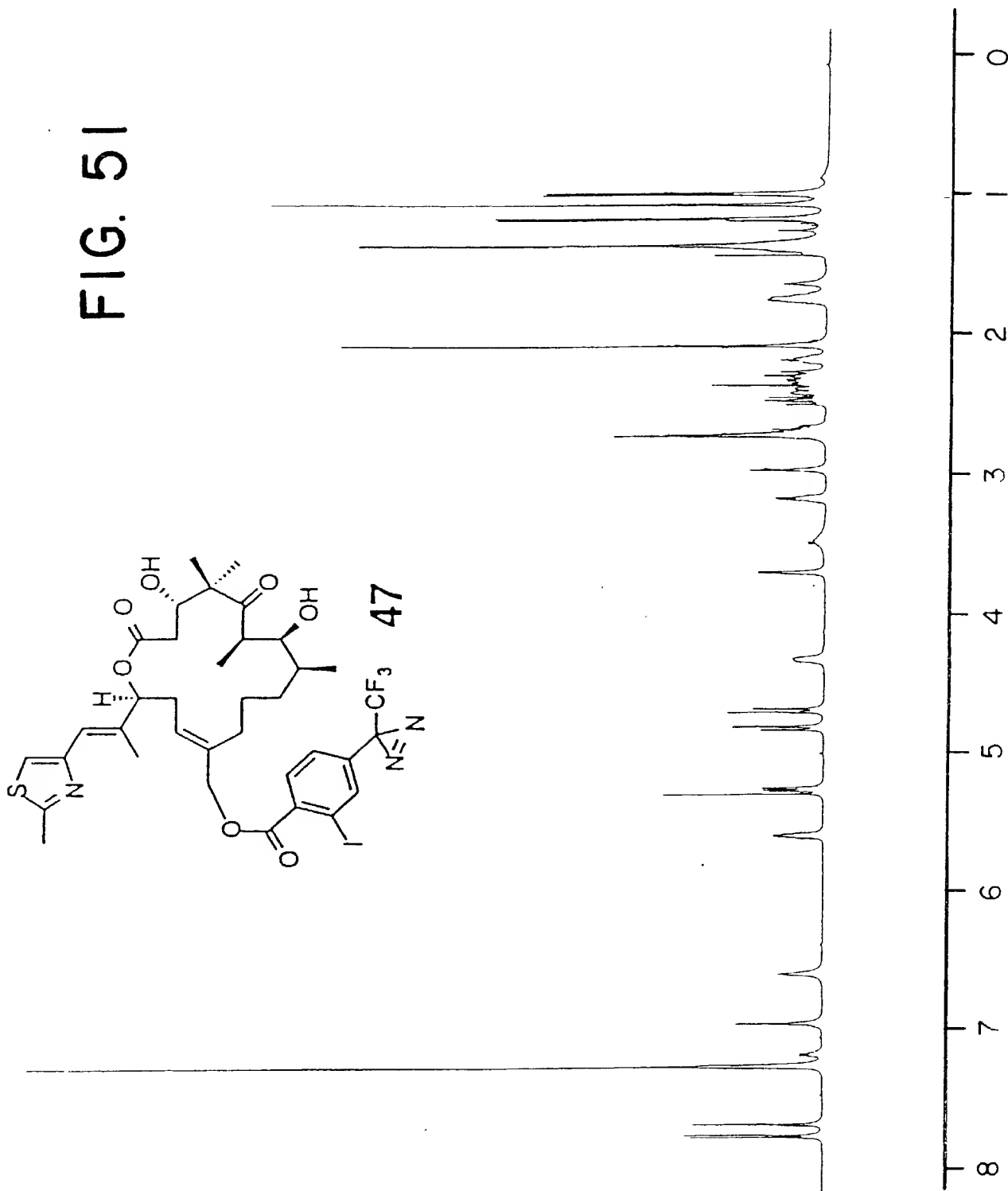
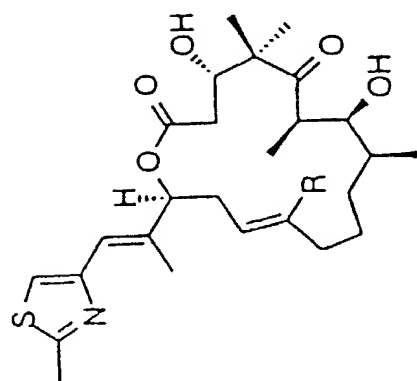


FIG. 52



48 R = (CH<sub>2</sub>)<sub>3</sub>OH

